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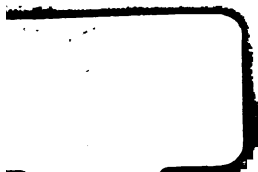
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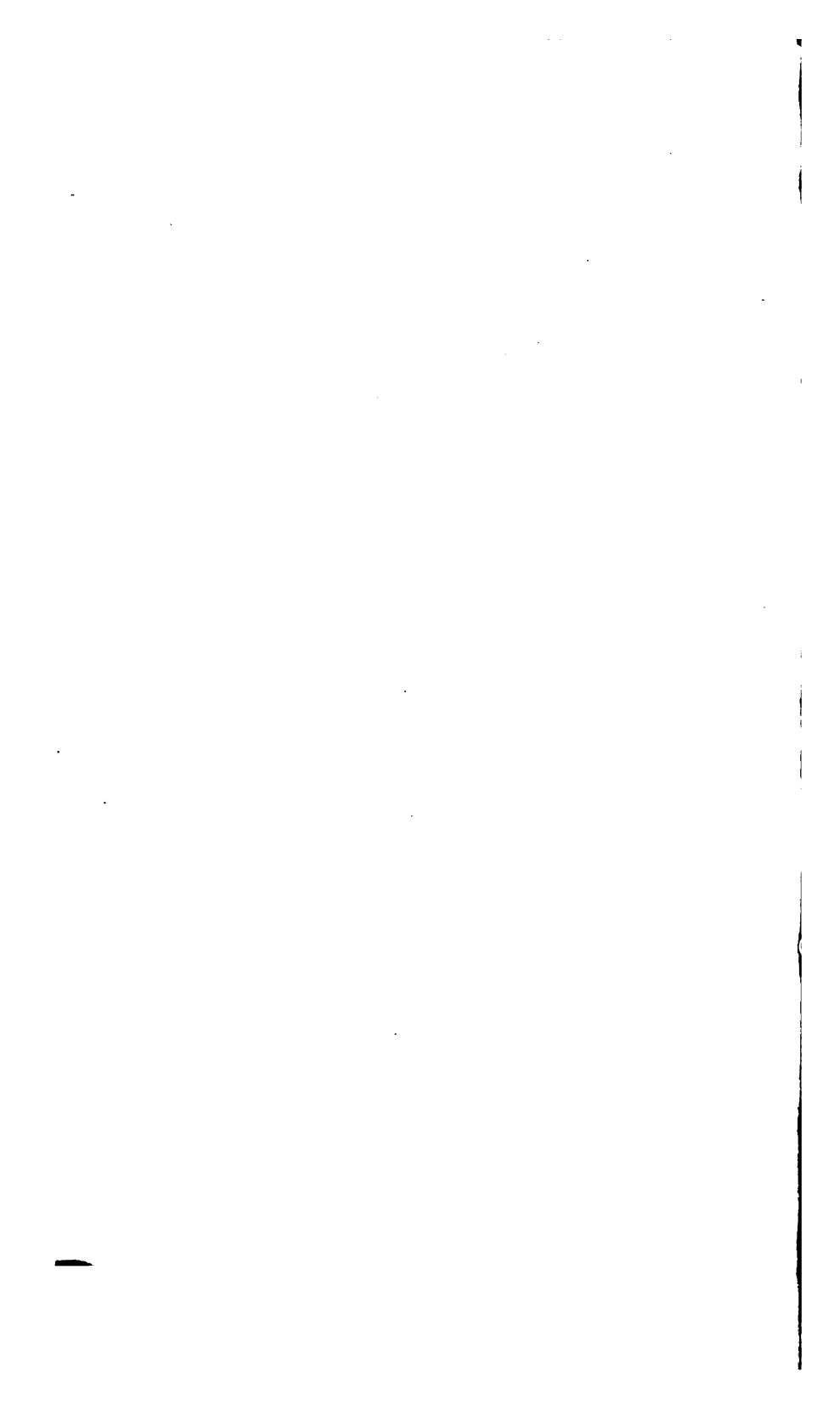
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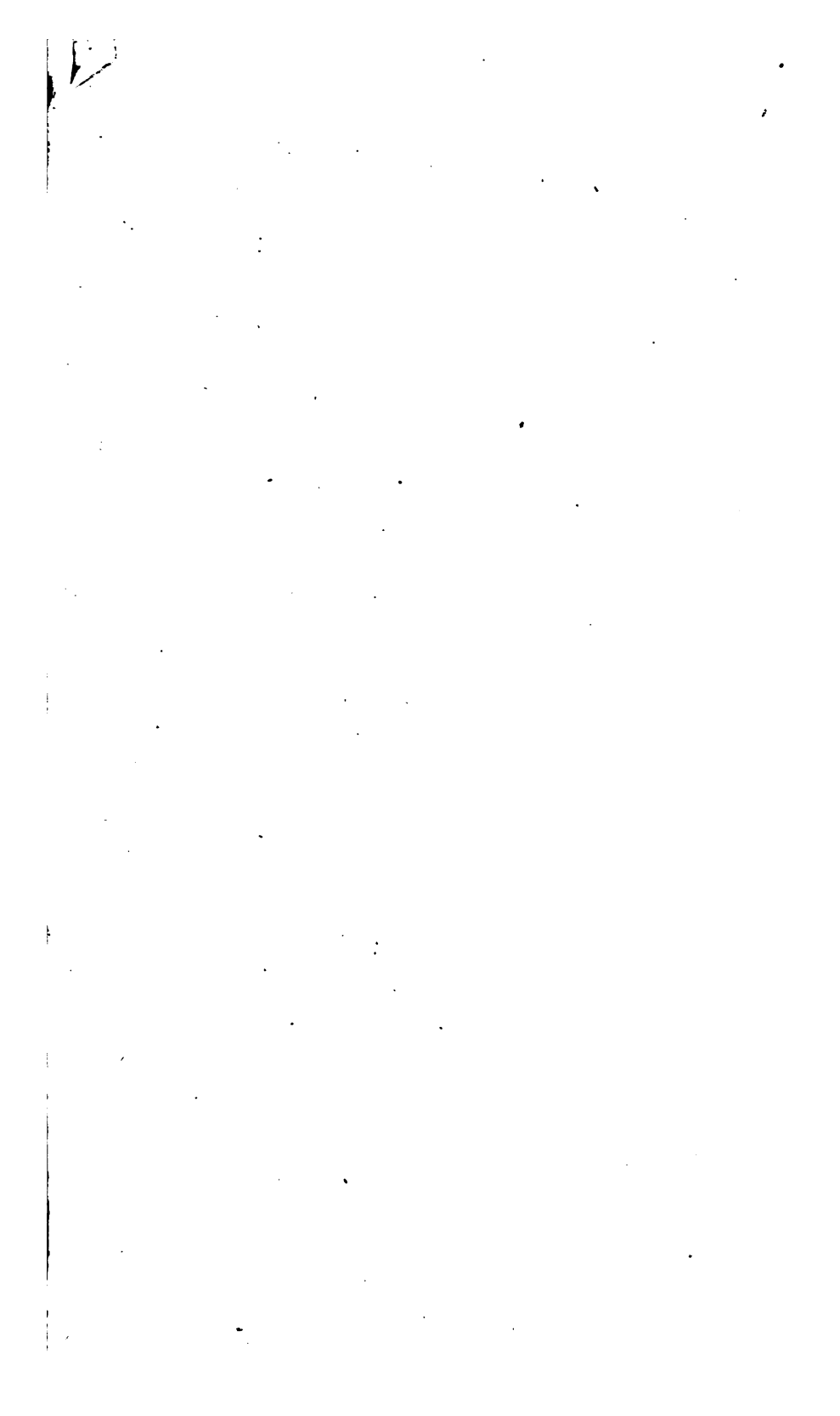
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JOHN HUNTER.

MEMOIRS
OF
THE LIFE AND DOCTRINES

OF THE LATE

JOHN HUNTER, Esq.

**FOUNDER OF THE HUNTERIAN MUSEUM, AT THE ROYAL
COLLEGE OF SURGEONS IN LONDON.**

BY

JOSEPH ADAMS, M.D.

**CORRESPONDING MEMBER OF THE FACULTY OF MEDICINE IN PARIS,
LICENTIATE OF THE ROYAL COLLEGE OF PHYSICIANS IN
LONDON, AND AUTHOR OF OBSERVATIONS ON,
MORBID POISONS, &c.**

**ΟΜΝΥΜΙ — ἀγέσασθαι μὲν τὸν διδάξαντά μιν τῇ τέχνῃ ταύτῃ,
ἵσα γινέσθω ἱμοῖσιν. ἹΠΠΟΚΡΑΤ. Οὐκός.**

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WASH.

L I F E

OF

JOHN HUNTER.

**APOLOGY FOR THE UNDERTAKING — MR. HUNTER'S
EARLY HISTORY TILL HIS ARRIVAL
IN LONDON.**

IN proportion as a country advances in Literature, biography becomes a more interesting inquiry. The early Philosophers and Poets had few contemporaries who could furnish memoirs sufficiently important to catch public attention; and from the exalted opinion entertained of the deceased, a faithful record of their lives might rather have diminished than added to, their celebrity. It is to the advanced state of Grecian literature that we owe the truly philosophical compilations of Plutarch.—Cornelius Nepos flourished in the Augustan age, yet could find few characters, excepting warriors, to interest his country-

men. France first led the way to that seductive mode of writing, under the title of *Memoirs*, which bring us, as it were, into company with the illustrious dead. But with what does she, for the most part, present us, excepting the dull intrigues of a court, or the more disgusting intrigues of its purlieus? We cannot, indeed, say that we have no better model, when we reflect on the *Memorabilia* of Zenophon, the moral precepts in which add as much to the interest as to the intrinsic merit of the work.

To render the history of any life interesting, we expect, besides the most scrupulous attention to truth, certain qualities in the writer; viz. a style flowing and suited to the subject; a sufficient knowledge of the character described, with a lively interest for his posthumous fame. It is hoped, that mediocrity in the first may be compensated by an undisputed portion of the latter, as it is scarcely possible to hear an incident or a character described, without, in some measure, participating in the feelings of the narrator.

Such must be the apology for offering a life which has already been written by an enemy and by a friend, a relation and disciple; besides having appeared in various compilations of *Biographies*, *Dictionaries*, and

Encyclopædias. But the only one entitled to any credit, was written at an early period after the writer and the world had sustained so heavy a loss. At such a time, the relation of many events might appear less important from their supposed notoriety; nor was it possible to calculate how new and how interesting they might prove to the rising generation. Besides these omissions, there are so many errors, extending even to dates, in Sir Everard Home, as can only be apologised for by the haste with which the Memoirs were put together. Let me plead lastly, that a new edition of Mr. Hunter's great work has appeared, without a republication of his life.

Twenty years have passed since we had first to lament his loss. From that time, instead of being forgotten, we find his fame gradually increasing. It is already disputed what were his opinions, with a warmth which evinces their importance, and how much their authority adds to the doctrines of others. To what are we to impute this increasing posthumous fame? Not, surely, to those labours which he left unfinished; few of them have appeared, and those few have not always tended to increase our opinion of his perspicuity, whatever they may do of his diligence. His reputation has grown like that of other original geniuses. In proportion as we have

since improved in our knowledge of Nature, we see the force of, because we understand, what he taught. In other words, when we make a discovery in pathology, we only learn what we have overlooked in his writings, or forgotten in his lectures.

Mr. Hunter, we are told, was descended from an ancient family: it is worth remarking, that many of our illustrious families derive their names from offices which were likely to bring their ancestors most about the royal person. Hence the Butlers and Stewards, probably too the Spencers and le Dispensers; and, it is not improbable, that the first of the race from whom the name of Hunter is derived, might have been an attendant on a royal sportsman. The armorial bearings of the family seem to confirm this conjecture. But, whatever may be the antiquity of Mr. Hunter's family, future historians will scarcely take the trouble of tracing it further back than the 18th century.

It is pleasing to mark every incident connected with great characters, and their early progress never fails to produce reflections useful for the only purpose to which all literature should be directed. What would we not now give to know the early domestic condition of Socrates! With what eagerness

do we read of Sir Isaac Newton's grandmother, her gardener, and of the apple which fell in her garden! But the family of Mr. Hunter exhibits a picture particularly pleasing.

John was the youngest of ten children of John and Agnes Hunter, of Kilbride, in Lanark: he was born on the 13th of February,* 1728, at Long Calderwood, a small estate belonging to the family: his father was descended from the Hunters of Hunterstown, an old family in Ayrshire; and his mother, the daughter of Mr. Paul, a very respectable man, and the treasurer of Glasgow. That his parents were respectable there cannot be a question, from the manner in which their children were brought up. In the father this is practically proved, by a document which teaches us as much as volumes. I shall make no apology for transcribing part of a letter to his son William, though it has already appeared in print. "Nothing," says the venerable sire, "has proved a greater comfort, than the hopes of seeing you here soon; but your letter has cast a very great damp

* In the Life, by Sir Everard Home, Mr. Hunter's birth is dated July 14. His birth-day is celebrated at the College of Surgeons on the 14th of February; but the register, with a copy of which I am honoured by the Rev. James French, minister of the parish, says February 13.

“ upon us all. I think you have been, in a
 “ very extraordinary manner, obliged to Dr.
 “ Douglass; and, whatever opinion I may
 “ have of the present offer, or however un-
 “ willing I may be to consent to it, still I
 “ must thankfully own it is a particular in-
 “ stance of his kindness to you. I surely
 “ must soon expect to be beyond this side
 “ of time, considering my age and present
 “ indisposition, being for some days past con-
 “ fined to my bed with sickness and a severe
 “ fit of the gravel, and would be glad to have
 “ you near me for the little while I shall be
 “ in this world; though, at the same time, I
 “ should be sorry to hinder you from making
 “ your way in the world the best way you
 “ can. I wish you to consider well what
 “ you do. With Dr. Cullen you may be very
 “ comfortably situated, and make money; and
 “ if you miss this opportunity, you cannot
 “ be sure of it another time. Dr. Douglass’s
 “ kind offer is only for a time: he may die
 “ before you come home or are settled, and
 “ leave you without friends at a great enough
 “ uncertainty. I suppose now you know very
 “ well the difference between the expence of
 “ living at home and abroad, and that per-
 “ haps clothes and pocket-money may cost
 “ you more than your whole expence at home
 “ would do. You know my willingness to

“assist you; but you know too, that already
 “I have gone fully as far as my numerous
 “family will allow of. You must now do
 “something for yourself. Consider all these
 “things; and if you can persuade me that it
 “is for your good, I will not be against it.”*

Whoever peruses this letter without a pause, I shall not desire to number him among my friends. Far be it from me to suppose there are not many parents who would sacrifice the selfish wish of enjoying their son's society to the prospects of such a child; but the unambitious tenor of the whole, when we consider it as counsels to a young man who had only to improve the events before him, in order to secure celebrity and wealth, is worth contrasting with the constant stimuli to ambition which are held forth in Letters once considered as a true model for education. That this amiable state of mind descended to the offspring, we have repeated instances in the life of Dr. Hunter, from which the above extract is made. Innumerable proofs will occur in our history of John; nor can I keep myself from unveiling the rest of the family picture, as far as it has been preserved. James, the only remaining brother who survived infancy, seems to have been one of those interesting characters,

* Account of Dr. W. Hunter, by the late S. F. Simmons, M.D.

which only appear to teach us, that in proportion as human nature approaches ideal perfection, such an unnatural condition carries with it the principles of early decay. Till his 27th year, he was devoted to the laborious department of the law. We cannot wonder if, on his arrival in London, captivated with the pursuits in which he found his brother engaged, he instantly determined to abandon the search after human records for the contemplation of Nature. Sir Everard Home tells us, on the authority of Dr. Hunter, that James was a young man of peculiarly pleasing manners, and with talents which displayed themselves with great readiness very early in life; that had he lived to practise physic, there was a moral certainty of his success beyond any other in the profession. It is not altogether unworthy of remark, that this pre-eminence of talent is more frequently a family than a hereditary endowment. At the same time; we might reckon two brothers, one at the head of the English, the other of the Scottish bar; and two others, one presiding at the civil, the other chief of the ecclesiastical bench. It would have been curious to have seen three brothers enthusiastically devoted to medicine, and each assuming the highest rank in the three departments. Such was the case with two; but a spitting of blood obliged James to

return to Long Calderwood, where his family had the last melancholy satisfaction of being prepared for his loss by witnessing his early decay. Who is there that does not recollect similar characters? who that cannot say of a dear relation or friend,

“ *Si qua fata aspera rumpas,*
“ *Tu Marcellus eris ?*”

It becomes us, therefore, to reconcile ourselves to such events, by reflecting on the necessary chain of cause and effect. When speaking of the perfection of an imperfect being, I am not adverting to strength of body or mind, nor even to that enlarged and disinterested philanthropy which offers all his goods to the poor, and his body to be burnt, but to something united with all these, yet superior to them all: we can only refer to that *charity* which is no where described, excepting by one who seemed always to regret he could never attain it.* To a courage which sees no danger, and a gentleness which provokes none; a gracefulness of person; a complexion almost angelically transparent; a smartness in conversation, in which, whilst the brilliancy of the eye prepares us for a lively sally, we are never fearful where it shall fall,

* See St. Paul's description of charity, 1 Cor. ch. xiii.

because we see instinctively that it can never give pain—such is not naturally the human character. But such images are sometimes lent, as if to teach us that we should endeavour to imitate them. Such a life seems passed in a condition bordering on the most agreeable form of ebriety, on that particular state of the whole frame which, in other constitutions, is often the forerunner of some acute disease, or the attendant on convalescence. It seems, in fact, a constant feverishness, in which the mind, divested of all fear, or gloom, or suspicion, is, with the body, excited to actions which the human frame cannot permanently support. Who is not delighted at the sight? But what pathologist can view it without a foreboding sigh!

Of the ladies, Mr. Hunter's sisters, our memoirs must be scanty. Janet died a few years after her marriage with Mr. Buchanan. In the account given by Sir Everard Home, it seems probable that, from a delicacy of mind, she sunk under a disappointment of which she was unwilling to complain. It does not appear that she left any offspring. The more fortunate Dorothea was happily married to Dr. James Baillie, Professor of Divinity in the University of Glasgow, a highly respected and one of the most eminent clergymen in Scotland. By him she had three children; two

of whom, as authors, and consequently public characters, we may be permitted to notice. There is scarcely a work which, in so small a space, contains so much valuable information as the "Morbidity Anatomy;" nor a work of which we may so truly say, that, though replete with references and authorities, there is not a line that can give pain to a reader of any description. But what shall we say of that elegant compilation of engravings, published as illustrations of the same work? A collection which must have been suggested by the purest intentions, as it could scarcely be expected that so heavy an expence would be repaid by the sale; and among the numerous contributors, the author or compiler's name seems almost concealed.

The interesting dramatic pieces of Joanna speak a mind well stored, well directed, adorned with simplicity, and crowned with festivity. This subject might be enlarged, were it not indelicate to dwell on living characters, and unnecessary for those to whom it would be most interesting.

John Hunter being the youngest child, and born when his father was nearly arrived at his 70th year, was very likely to be a favourite with the whole family. Ten years after his birth, his mother was left a widow. He was now the only son at home, and one or both

her surviving daughters were married. It cannot be questioned, that at this age, he must have been, on all other accounts, extremely interesting. Who shall say that this interest was not increased by the very sound of his name, as associated with the recollection of her late husband at an early period of life. The vigour of his judgment, and the benevolence of his disposition, must have appeared in a thousand juvenile observations.

Few readers are ignorant that each parish in Scotland is furnished with a grammar school. These Seminaries, fortunately, are not like many of our foundations in England, supported by a specific annuity, which, from a misapplication of the donor's intentions, or from the diminished value of money, is now scarcely sufficient to afford the school-master a daily breakfast. They are usually under the government of the nearest Police, and supported by those who have an interest in their good management: add to this, the Scotch are generally the best grammar masters. I speak it to their honour, and with heartfelt gratitude, that they are usually conscientious in fulfilling this most sacred duty.

The necessary severity and uniformity of life in a grammar-school are not calculated for every genius. Thus we find some of the men who have most distinguished themselves

in after-life, have been the most impatient under scholastic restraint. This is not intended as an apology, but as a friendly caution, should these pages accidentally meet the eye of a school-boy. Irksome as the restraint may be, and dull as the employment of construing may seem, they are absolutely necessary for acquiring what can only be acquired at that age; and the want of which, becomes in after-life a perpetual source of regret. Had Captain Cook submitted to this early toil, his writings would have had the charms of polish, as well as the dignity of truth, to recommend them. Had Howard received the education to which his paternal inheritance entitled him, what graces might have adorned those memoirs which even now are a national boast! Had Horne Tooke been sooner aware of the importance of words, he would not have wanted a Wakefield, to complete a work which may form a new æra in philosophy! Had Mr. Hunter availed himself less of maternal tenderness, his style might have been perspicuous, easy, and full of force, without losing any of its accuracy. It is true, in the instance of Mr. Tooke, and still more of Dean Swift, we find that subsequent application may supply the want of early diligence; but this can seldom happen to those whose

occupations are constantly and necessarily connected with the busy scenes of life.

The partiality of an aged father to his youngest child, and afterwards the indulgence of a widowed mother to the only remaining boy at home, were not likely to sharpen the industry of John—

Τοῦ ὕστερ πατὴρ εἰσέκει μὲχισθαι
Οὐκ ἔστι οἱ μετὰ τοῖσι πτωχότατος ἔσκε γοργίῳ
Καὶ οἱ φίλτατος ἔσκε.

Hence, we are not surprized to learn, that from the period he was sent to school to his seventeenth year, his life passed without any improvement from education. At this time an event occurred, which is only important as connected with such a character.

There is a general report, that Mr. Hunter was destined to be a carpenter; and one of his biographers goes so far as to say, “ a wheelwright or a carpenter he certainly was.” Had he really been a wheelwright, a carpenter, and the son of a carpenter, his discoveries would not be less brilliant, nor his industry less meritorious.—Sir Everard Home tells us, that “ about this time Mr. Buchanan, who had lately come from London to settle at Glasgow as a cabinet-maker, paid his addresses to Mr. Hunter’s sister, Janet; and having

many agreeable qualities, she was induced to marry him, although contrary to the advice of her relations. This marriage gave the family great concern; for the qualities which had rendered Mr. Buchanan agreeable, led him into dissipation, and made him neglect his business. Mr. John Hunter, who was now seventeen, went to Glasgow upon a visit to his sister, for whom he had the greatest affection, to comfort her in her distress, and endeavour to assist her husband in extricating himself from his difficulties; but finding, after some time, all his efforts ineffectual, he returned to Long Calderwood."

When a youth of seventeen is sent to comfort his married sister, and to extricate her husband, we can scarcely doubt that he was to take some active share in the business. It is not indeed probable that he was apprenticed to Mr. Buchanan; neither his own age, the situation of his brother-in-law, nor the general customs of Scotland, authorize such a suspicion; but those who knew John's temper, will hardly believe that he could keep from the glue-pot, when orders were pressing, and when the completion of them promised the means of relieving difficulties. In most towns, at a distance from the metropolis, the trades of a carpenter and cabinet-maker are united. Such was probably the custom at Glasgow

sixty years ago. As there is nothing disgraceful in either occupation, it seems a matter of little importance which was Mr. Hunter's, or whether he was engaged in both. Since the former edition, I have learned from an authority which cannot be impeached, that in those days it was not unusual in Scotland for the younger sons of gentlemen to be brought up to mechanical trades, and to work at them in order to understand them more thoroughly. Mr. Buchanan, I have been informed, was the son of a highland gentleman of respectable family.

All this is highly probable, and by no means confined to Scotland. In Pope's days it is evident that the younger sons of landed gentlemen were disposed of, not only in larger manufactories which require capitals, and in which the principal should, from every motive of prudence, be made acquainted with the mechanical part, but in even the subordinate condition of retail traders—

“Beastful and rough, your first son is a Squire;

“The next a Tradesman meek, and much a liar.”

I could myself enumerate more than a dozen, not the younger sons, but actually heirs of landed opulent men, who were apprenticed to tradesmen, and in consequence of the im-

proved state of society, became disgusted with their employment, and ashamed of its recollection. The celebrated Howard, heir to very large property, was apprenticed to a cabinet-maker in St. Paul's Church-yard, from conscientious motives in his guardian, who conceived a knowledge of business particularly important for teaching a young man of fortune how to take care of his money. But, whatever may have been the cause, we may fairly assert, not only from probability, but from well authenticated local tradition, that John worked at his brother-in-law's trade.

The design, however, ended, as is too often the case with unsuccessful industry, united with some talent and good intention. Whoever peruses the life of Burns, written by Dr. Currie, will see the progress of such characters portrayed in the liveliest colours. It was not the want of industry, nor the love of dissipation, that rendered our young farmer so soon dissatisfied with his occupation.— Burns, in contemplating his fields; and Buchanan, at the sight of the bench, saw no prospect but unavailing toil. In company, each found himself caressed. Let those who have greater encouragement to labour, and fewer incentives to dissipation, be careful how they condemn. In the metropolis, and still more in rising colonies, genius, with in-

dustry, may command success ; but, with a population more confined, with constant competition beyond what the wants of a district can satisfy, some must be unsuccessful; and these will not always be the least meritorious.

Mr. Buchanan joined to his other companionable talents the endowment of a good voice and a musical ear. Still there is no reason to believe that he neglected business, as long as he had any prospect of success. Could he be expected to forego that society in which he gave pleasure, whilst he indulged the propensities of his native genius? Could he feel at ease when he reflected on home? In London, a nice hand or inventive taste might have secured him employment or patronage. His musical talents might have proved auxiliary in Glasgow, but were not likely to furnish a support: to these, however, he at length resorted; and, besides what he gained by teaching, had the appointment of Clerk to an Episcopalian Society of Christians. To this day he is recollected by the familiar name of *Amen*; probably, during the age of bigotry, a term of reproach with the members of the established Kirk; but in the present instance, by the young people who trusted to Mr. Buchanan's kind disposition, only used for their mutual diversion.

It is easy to conceive that John soon be-

came weary of witnessing embarrassments which he could not remedy ; or that his sister preferred weeping in private, to admitting her younger brother a constant witness of her uneasiness. The event had, however, the good effect of weaning him from home, and probably of reconciling his mother to his absence.

MR. HUNTER'S ARRIVAL IN LONDON, AT THE
ANATOMICAL SCHOOL OF HIS BROTHER—
HIS OTHER STUDIES—EMBARKS AS
SURGEON WITH THE ARMY.

ON his return to Long Calderwood, the village amusements could no longer occupy such a mind. Probably, too, relations concerning the Dissecting Room, which he had heard from his brother James, five years before, might now occur to his expanding genius, and fill him with an anxiety to explore the arcana of Nature. In answer to a letter, in which he offered to assist his brother, Dr. William, he received a very kind invitation, and lost no time in repairing to London, in company with Mr. Hamilton, a friend of the family. This was in the month of September 1748, a fortnight before the commencement of the autumnal course. Dr. Hunter, in order to form a just estimate of his talents, gave him an arm, with the necessary directions, to dissect for the muscles. Those who have seen Mr. Hunter at work in any period of his life, will not be surprised to hear that he completed his task far beyond the expectations of his brother, who had been ten years engaged in

the same occupation. He was immediately intrusted with an arm with the arteries injected. In this more delicate undertaking, in which the vessels were to be preserved as well as the muscles, he was equally successful, so that the Doctor, who was all neatness and order, did not scruple to prophecy that he would become a "good anatomist, and should never want employment." By these last expressions, which are transcribed from Sir Everard Home, we are led to conclude, that highly as Dr. Hunter might estimate the diligence and accuracy of his brother, he had at that time no conception of the strength of his genius, the boldness of his inquiries, or the accuracy with which he would conduct them. We are now to consider him as engaged in the dissecting room, under the direction of Mr. Symonds, Dr. Hunter's assistant. The advantages were certainly great to one so unacquainted with the subject, as there was at that time scarcely any other anatomical school in the metropolis.

In the following summer, the celebrated Cheselden, by the request of Dr. Hunter, permitted John to attend at Chelsea Hospital. Here he had ample scope for his inquisitive mind; here he had leisure to trace the progress of Nature in all her operations of disease and restoration; and here he probably first began

to suspect that rude state of surgical pathology, which described the progress of ulceration as a solution of the solid parts into pus or matter.

In the succeeding season, Mr. Hunter was so far advanced in the knowledge of anatomy as to preside over the pupils in the dissecting room, the Doctor almost confining himself to the lectures in the Theatre. Such was John's employment during the winter. In the summer months, he resumed his occupation at Chelsea Hospital; and in the following year, 1751, became a pupil at St. Bartholomew's. This was two years after the celebrated Mr. Pott was chosen one of the senior surgeons to that royal establishment. It would be curious to know what Mr. Hunter, at that early period, thought of a character so different from himself. Mr. Pott was doubtless a great man in his day, and an experienced surgeon, having been at that time five years assistant-surgeon. No man operated more gracefully, or possessed a better choice of expression in lecturing, or an easier flow of language in conversation, or a nicer taste in composition. It was impossible, however, that Mr. Hunter should not have seen at an early period the unstable foundation on which many of his master's pathological doctrines were supported. Yet, in none of his writings is Mr. Pott mentioned but with re-

spect. Even the subsequent misunderstanding between him and Dr. Hunter produced no effect on John.

In the year 1753, Mr. Hunter entered as Gentleman Commoner in St. Mary's Hall, Oxford. What his intentions were at that time we cannot learn from any of his biographers. It is, however, most probable, that till then Dr. William had not completely made up his own mind to relinquish surgery. Certain it is, that he was not established as Physician to the Lying-in Hospital till about that time, nor a Licentiate of the London College till September, 1756.* It might, therefore, have been his intention that his brother should be matriculated at an English University, with a view to his becoming a Fellow of the London College. May we be allowed to conjecture what might have been the consequence. Could John, after five years close application to the structure of parts in the dead, and the operations of Nature in the living body, patiently have engaged in classic lore, rhetoric, geometry, and the higher branches of philosophy. Without these, he would have been little noticed at that learned establishment; and in the acquisition of them, at that advanced age, his zeal in his former pursuits must have lan-

* Life of Dr. William Hunter, by Dr. S. F. Simmons, p. 18.

guished. It is not likely he should ever become eloquent; and tardy as his early emoluments were, even in surgery, his pecuniary embarrassments, as a physician, must have been still greater.

I have since been informed, that his principal object in repairing to Oxford was his intimacy with Dr. Smith, the Anatomical Professor in that University. He probably entered at St. Mary's Hall to have a home for the few months he remained; and perhaps it might be conceived, that he should gain some éclat by being called a Member of the University. But whatever were his motives, we may consider it fortunate for himself and mankind, that the year following he was entered as surgeon's pupil at St. George's Hospital. This step may appear superfluous for one, who, by the range of Chelsea and St. Bartholomew's, had intercourse with Cheselden and Pott, the most distinguished men of their age. But, according to the regulations of those two establishments, the chance of his becoming surgeon to Chelsea was very remote, and nothing but an apprenticeship to a surgeon of St. Bartholomew's could be admitted as a qualification to become a successor. At St. George's the difficulties might be fewer, and the growing interest of his brother among the great might facilitate his admission,

Two years after his entrance as a pupil, Mr. Hunter was appointed House Surgeon to St. George's Hospital. This office, it should be observed, is temporary, and may, with much propriety, be called that of resident pupil. The person who holds it has apartments in the house, and is expected to be constantly at hand for all accidents which may be brought to the house, or which may occur in the vicinity.

In the year 1755, Dr. Hunter admitted his brother into a partnership in his Lectures; a certain portion of the Course was allotted to him, and he was expected to supply the Doctor's place when professional engagements prevented his own personal attendance. This must have been a painful task for John. Anatomical Lectures, to be rendered interesting, must be given extempore; a talent in which Dr. Hunter can never be excelled, any more than in an easy and perspicuous mode of demonstration. Unfortunately, few men were less suited than his brother to be placed in competition with him.

For dissection, however, and making anatomical preparations, none could exceed Mr. Hunter. Though, in common hands, these may be considered as merely mechanical employments, in Mr. Hunter's we shall see they were very different, and probably to that ha-

bit of reasoning profoundly, which he evinced on all occasions, we may impute the patience with which, throughout life, he practically pursued his dissections. At this early period we find him active in the examination of criminals, with whose complaints he was previously acquainted, and even correcting, by demonstrative evidence, the commonly prevailing errors concerning the formation of pus. But the most brilliant proof of his innate sagacity in exploring Nature, was shown by a discovery in which all Europe was at that time engaged.

Sir Everard Home gives him credit for his *Observations on the Hernia Congenita*. I am persuaded, from his character, and from all his writings, that Mr. Hunter would have been offended if he thought himself suspected of claiming any share in that discovery; the whole of which, even to the very appropriate term, was exclusively Haller's. But a correct knowledge of the progress of the testis into the scrotum was exclusively Mr. Hunter's; and marks, in the most striking manner, the strength of that genius which led him to a proper mode of conducting his inquiries. Instead of *guessing* how so complicated an event could be brought about, we find him *exploring* the visible phenomena in a vast number of subjects at different periods of foetal exist-

ence, all which he demonstrated, and concluded by showing that every part of the process must be resolved to that *fiat*, the laws of which we may discover, but the causes must for ever remain unknown. This discovery being the first that attracted the attention of every enlightened physiologist in Europe to a name scarcely known before but as *Gulielmi frater*, I shall reserve for a distinct Essay in the Appendix.

About this period, too, Mr. Hunter traced the ramification of the olfactory nerves from the membrane of the nose, and discovered the branches of some of the fifth pair of nerves in the gravid uterus. He also traced the arteries to their termination in the placenta: — Sir Everard Home says, that Mr. Hunter was the first who discovered the existence of lymphatics in birds; and adds, in a note, that “an account of his injecting the testis; his description of the descent of that body, with observations on hernia congenita; and his experiments in proof of the veins not being absorbents, are published in Dr. Hunter’s Medical Commentaries. In justice to Mr. Hunter’s memory, it is necessary to remark, that only one of these papers is to be found in any collection published by himself; nor is there any proof that he assumed more. Mr. Hewson always claimed the discovery of

lymphatics in birds ; nor can I learn that it is yet disputed, by those who are the best judges. Dr. S. F. Simmons, in his *Life of Dr. Hunter*, very fairly marks the share Mr. H. Watson had in injecting the testicle, Baron Haller in the hernia congenita, and Noguez in the doctrine of the absorbents. In justice to the Hunters, however, it should be understood, that John's experiments were not instituted to show that absorbent vessels exist, but that the veins carrying red blood have no share in that process.

These Dissections were enough to lead Mr. Hunter into inquiries concerning the structure of other animals, or, as it is usually called, comparative anatomy. The structure of certain quadrupeds, and of the hedge-hog, seems first to have led Baron Haller to a suspicion of the early situation of the human testes. Mr. Hunter could not fail on this, as on all other occasions, to consult the book of Nature, instead of trusting to human records. This and other similar investigations, as Sir Everard Home observes, led him into a wide field, and laid the foundation of his collection in comparative anatomy. Such, indeed, are the charms of all natural knowledge, that no successful inquirer can set limits to his curiosity. Hence we find him, at a very early period, eager in the acquisition of every rare

animal, that he might trace the peculiarities of each. For this purpose he applied to those who have the charge of the royal menagerie at the Tower; and of other collections of animals, bespeaking their carcasses; in return for which, he purchased others alive, and entrusted such as were presented to him to the care of the public exhibitors during life, satisfied with securing their *post obit*.

In the year 1760, Mr. Hunter having just exceeded his 32d year, felt symptoms which were thought to threaten consumption, and to render the residence in a milder climate advisable. This is imputed by his biographer to his excessive fatigue. Such was probably the immediately exciting cause: to this we may add, the anxiety which usually attends that age in men who have only their own diligence to depend on, and who now begin to fancy themselves losing time, unless they feel a progressively improving remuneration for their labours. We shall find also, that, for a considerable part of his life, Mr. Hunter was subject to inflammatory complaints, which returned pretty regularly in the spring, till they ended in that organic infirmity which embittered his latter years, and suddenly deprived the world of his services.

Probably other reasons, slightly hinted by Sir Everard Home, might have reconciled John

to relinquishing his brother's school. "His labours," says his Biographer, "were so useful to his brother's collection, and so gratifying to his disposition, that though, in many other respects, they did not agree, this simple tie kept them together for many years." We shall hereafter see, that the first source of this disagreement may be traced much further back. But without looking for any other motive, we cannot wonder if, after a diligent attention to the advanced stage of wounds in the military hospital of Chelsea, he should wish to trace their commencement in the field of action.

In October, 1760, Mr. Adair, inspector of hospitals, appointed him surgeon on the staff; and in the spring of 1761, he embarked with the army for Belleisle, leaving Mr. Hewson to assist his brother during his absence. To this fortunate event we owe so many improvements in military surgery. It is true, many writers and practitioners were beginning to be dissatisfied with the cruel practice of those days; but no one had so far entered into the pathology of surgery as to reduce it to a science, by any rational system or satisfactory laws. The ingratitude or inattention of his successors have much circumscribed the advantages which the world would otherwise have derived from his labours; but our ob-

ligations to him are not on that account the less.

He remained with the army, says Sir Everard Home, till the year 1763; and the knowledge he there acquired on the subject of gunshot wounds, "makes no inconsiderable part of the present work." Whatever Mr. Hunter wrote could not be inconsiderable; but if it is meant in comparative bulk, the part is inconsiderable indeed. His great aim was, first, to teach the true pathology of surgery, and afterwards to point out the peculiarities in which this branch differed from others. But if military surgery occupied only a small space in his Treatise, how much less did it appear in his Course of Lectures! His remarks on lock-jaw, in particular, which I have reserved for the Appendix, are enough to show how accurately he described what is at this time imperfectly understood, though well explained in the writings of the ancients.

Whilst thus fulfilling his duty, and adding to the practical and scientific knowledge of his profession, he found time also to avail himself of the opportunities before him, in settling certain physiological doubts. The number of human subjects recently killed, and in previous high health, enabled him to trace the healthy structure of every part, and the secretions of some with peculiar accuracy.

Many of these experiments are published: but I cannot help relating one set, in which he availed himself of the climate to ascertain a fact interesting in comparative anatomy, and in his hands, most important in pathology. They were the first I heard from him, when my friend and fellow student, Dr. Stokes, introduced me to a lecture in the middle of his course of the year 1782.

Observing that lizards and other cold-blooded animals, as they are usually called, passed their winter in a torpid state, without feeling any necessity for food, he was anxious to know what animal actions were continued at that time. With this view, he forced worms and other substances into the stomachs of those reptiles immediately before they retreated into their winter quarters. In the spring, he found the substances remained undigested, and that they passed in that state through the alimentary canal. By this, he proved, that all digestion ceased during the time of hybernation. This precisely accorded with his just conception of the subject: namely, that so little action was kept up during that period as to require no fresh materials for support; and, consequently, that no provision is made by digestion. In order the better to ascertain this point, he wished to see whether the exciting of greater action at such a season would not prove fatal

for want of the necessary supply which the waste occasioned by such action would induce. With this view, he brought into the open air, lizards that had been confined in cellars in a torpid state. Being placed in the sunshine, they soon began to bask and move about with great agility; but these exertions were short, and life ceased with them. In the mean while, other reptiles, which remained in the cellars, continued in their torpid state till spring; when they moved spontaneously into the open air, sought their food, and preserved their lives. The important inferences he draws from these facts, in illustration of the doctrine of inflammation and mortification, are well known to those who heard his lectures, and, at this time, to most medical readers. Unfortunately, however, like many other simple propositions, they are often overlooked, on account of that very simplicity. Hence we still find the patient gorged with wine and cordials as soon as mortification shows itself, as if the only object was to increase the action already excited higher than the powers of life can support. Such practice might be justifiable where the disease appears the effect of inanition; but where it is the result of previous inflammation, especially if attended with pain and other symptoms of inflammation in the neighbouring parts, can

there be a greater absurdity than to stimulate them into higher action? "Mortification (Mr. Hunter has remarked, in the introduction to his practical work) is of two kinds, the one preceded by inflammation, the other not. In both the action is greater than the power can support. But the increased action has usually been overlooked, and the want of power only attended to." Yet if the mortification has been preceded by inflammation, and if the same process of inflammation, terminating in mortification, is still continued in the surrounding parts, we should consider inflammation as the cause, and mortification only the effect. Our business is, therefore, to lessen action by every possible means, and not increase it by wine and other stimuli. In other words, the high inflammation must be subdued before we can expect the mortification to cease.

MR. HUNTER RETURNS TO ENGLAND, AND
SETTLES IN THE METROPOLIS.

AFTER the peace in 1763, Mr. Hunter returned to England, having, as I have often heard him say, been long enough absent to be satisfied how preferable it is to all other countries. By his absence, he had lost the few professional connections he had formed at that early age, and the tie between his brother and himself was not likely to be renewed. Mr. Hewson had now supplied his place in the dissecting room, and at the theatre. Though it would be unfair to compare the two men in other respects, yet, as Lecturers, neither had any claim to superiority. At the same time, we should recollect the disadvantages under which each must appear in the chair of Dr. Hunter, of whose talents we shall hereafter have occasion to speak. Mr. Hewson was, however, an excellent anatomist, diligent in his duty, and agreeable in his manners. Though his writings have scarcely survived their author, yet there was something new and showy in them at the time; and his ardour in the acquisition of knowledge could not fail to be transfused into the

young men about him. It was impossible that the cautious inquiries of Mr. Hunter (fitted rather for the adept than the pupil) should become popular, like microscopical demonstrations. The former, however valuable, could only be intelligible after close thinking: the latter, though they have led to nothing useful, were palpable to the senses, and served at once to astonish and flatter, by the novelty of the spectacle and the facility with which the whole was comprehended. The figures of the red particles of blood might be described; they might even be demonstrated; and the imagination would supply any deficiency the young observer might feel from a want of readiness in the use of optical instruments. But to connect the actions observed in the changes which the vital fluid undergoes, according to the operations of life, to show that coagulation of the blood, and its separation into its constituent parts is different, not only from congelation and gelatinization by temperature, but even from the coagulation of substances induced by chemical agency: in short, to prove that such changes in the blood can only be induced by life, and to confirm this by showing that when the blood is killed previously to coagulation, such a process never takes place;—all this, though eventually leading to the most im-

portant inquiries in the animal economy, and the fundamental consideration in all acute diseases, was too new, and consequently too much to be calmly considered by youths in the hurry of a short winter's residence, and in a busy metropolis.

Mr. Hunter, therefore, had now nothing to depend on but his half pay. He could, indeed, say with Simonides, *omnia mecum porto*. But an ingenious poet can instantly bring his wares to a good market. A physiologist, on the contrary, must be a long while preparing them; and when ready, they are only marketable with those who require something more than a temporary festival. It is true, that the army will always furnish some useful connections to prudent men. Dissipation is not a necessary part of the military character; and even in circles in which it is most prevalent, there are always a discriminating few, whose opinions will have a proper influence on the rest. It was impossible that these should forget Mr. Hunter's unwearied diligence or his sagacious observations, or that thirst after knowledge, which evinced itself even in the hurry of a campaign, and in the irksomeness of a siege: add to this, Mr. Hunter's manners were extremely companionable. His wit, or more properly his arohnness, was always well directed, and the slowness of his articulation

enabled him to point and correct it almost as it was uttered. Such a character, when it relaxes into broad conviviality, is peculiarly grateful to the gay and festive. It seems to furnish an apology for their own frivolity, and to supply new materials in a society which otherwise so soon becomes vapid.

Thus we view Mr. Hunter at a most important period, in his thirty-sixth year, arriving fresh in this great metropolis, and under the necessity of beginning life anew. It is truly interesting to see the manner in which two different writers describe these events.

“ On his return to England (says Sir Everard Home), he settled in London; where not finding the emoluments from his half pay and private practice sufficient to support him, he taught practical anatomy and operative surgery for several winters. He returned also with unabated ardour to comparative anatomy; and, as his experiments could not be carried on in a large town, he purchased for that purpose, about two miles from London, a piece of ground near Brompton, at a place called Earl's Court, on which he built a house.

“ In the course of his inquiries, this excellent anatomist ascertained the changes which animal and vegetable substances undergo in the stomach, when acted on by the gastric juice; he discovered, by means of feeding

young animals with madder (which tinges growing bones red), the mode in which a bone retains its shape during its growth:* and explained the process of exfoliation, by which a dead piece of bone is separated from the living.

“ His fondness for animals made him keep several of different kinds in his house; which, by attention, he rendered familiar with him, and amused himself by observing their peculiar habits and instincts: but this familiarity was attended with considerable risk, and sometimes led him into situations of danger, of which the following is a remarkable instance:

“ Two leopards, which were kept chained in an out-house, had broken from their confinement, and got into the yard among some dogs, which they immediately attacked; the howling this produced, alarmed the whole

* I suspect here some inaccuracy in Sir Everard Home. Mr. Hunter shewed the manner in which the bones retain their shape by burying two small leaden shots, at a measured distance, in the leg of a pig. Examining the bone when the animal was considerably grown, he found the shots remained at their original distance from each other. By this he proved that the elongation of the bone must depend on the apposition of new matter at the extremities, and not by an elongation of every part. See an ingenious paper of the late Mr. Gibson, in the Memoirs of the Manchester Society. Mr. Hunter's experiments on madder were made with quite a different view.

neighbourhood. Mr. Hunter ran into the yard to see what was the matter, and found one of them getting up the wall to make his escape, the other surrounded by the dogs; he immediately laid hold of them both, and carried them back to their den. But, as soon as they were secured, and he had time to reflect upon the risk of his own situation, he was so much agitated that he was in danger of fainting."

The following is the account given by another biographer, of Mr. Hunter's situation on his return to England.

"On his return to England, and at the close of the war, he took a house in Golden Square, and found himself, in point of fortune, better than nothing by his half pay; that enabled him to pay his house rent, and some other necessaries, requisite ever for those who sit down in practice waiting for patients;—and here commences his first career of a London surgeon.

"What happened to John Hunter, happens to every surgeon in the beginning; there was not employment enough furnished by the practical art, to fill up the active hours of the day. But his resources were in an extraordinary degree advantageous over most young surgeons under the same predicament for want of patients; he experienced no lassitude; he had furnished his mind with the means of em-

ployment; and, to say the truth, he was of an uncommon turn to industry."

From these two different writers, it is not difficult to conceive the situation of Mr. Hunter; unenvied, because scarcely known; anxious only for the acquisition of science; and finding his half-pay, with the little practice his connections supplied, quite sufficient for his wants. We may add, with these slender means he not only kept himself from difficulties, but actually purchased ground in a populous neighbourhood, and built a house. In the last expence he might, indeed, have been assisted by those arrears which are always reserved by the public offices, or army agents, from the pay accumulating during active service.

Whilst Mr. Hunter was absent, Dr. H. published his "Medical Commentaries," containing the three papers of Mr. Hunter, before alluded to. The paper on the absorption by veins has the following passage:—"At this time, my brother was deeply engaged in making experiments on living animals, and in prosecuting comparative anatomy. It is well known that I speak with moderation when I say so. He took the subject of absorption into his consideration, and from all his observations was inclined to believe, that in the human body there was one, and but one sys-

tem of vessels for absorption. He knew so well that many things had been asserted by one person after another, which were not true; that so many mistakes had been made from inattention, so many errors from other causes, that he could easily suppose the veins might not absorb, after all the demonstration that had been given of the fact; and therefore, was determined to see how far this point could be cleared up by plain experiments and observations. With that intent he made the following experiments in my presence, and in the presence of a number of gentlemen, who, all of us, assisted him, and made our observations on what passed before us."

Though the publication of such papers must have kept Mr. Hunter's name alive among the philosophic part of the public; yet, on his return, it is easy to conceive the obscurity of his condition, as far as relates to the town at large. "The practice of Surgery (says the biographer last alluded to) at that time, and for long after, afforded no opening for him: Hawkins, Bromfield, Sharpe, and Pott, embraced almost the whole of family practice; whilst Adair and Tomkins carried from him the chief of the practice derived from the army."—Thus overlooked by the public, much to the honour of the Royal Society, he was at this early period elected a Fellow, and in that title actually preceded his brother, who was ten years

older, and had been known in the metropolis ten years earlier : during which, the reputation of William was hourly increasing, whilst John was scarcely known but as his brother. I am aware there are not wanting those who impute such early success to this comparative obscurity ; but I see no reason why we should look for any other cause than the real merits of the parties.

Sir Everard has committed a great anachronism in saying, that "*at this time*" Mr. Hunter formed that association, which, after the meetings of the Royal Society, adjourned to a coffee-house, to discuss such subjects as were connected with science. At this age, and with this short introduction to the Society, "to read over and criticize the works of the members before they were given to the public," would have been highly unbecoming in himself and his coadjutors ; and, in fact, most of the names produced by his biographer, were not Fellows of the Society till many years afterwards.

It was in this year that, by an exertion in dancing, Mr. Hunter broke his tendo Achillis ; and in consequence, introduced an improved mode of treating such an accident :*

* I shall transcribe a passage, which forms the conclusion of an article on this subject, in the most modern and most generally popular work in Surgery.

"It seems unnecessary," says this truly respectable au-

of this I shall therefore offer a transcript from his lectures, because not being referred to by modern writers, I presume it is not generally known.—“ A broken tendon (says he) usually arises from the power of a muscle being put into full action, and a sudden resistance taking place at the same time. Of all others, the tendo Achillis is the most exposed to these effects, on account of the great power of the gastrocnemius muscle, and its constant use when the leg is moved with great force and rapidity. Yet, when the action is completely voluntary there is little danger, inasmuch as

thor, “ to enumerate the various plans, devised since the time of Petit. Suffice it to state, that both in a wound and rupture of the tendo Achillis, the ancient method of using a suture, for keeping the ends of the tendon in contact, is at present quite exploded, and position of the limb is the grand agent, by which the cure is now universally accomplished. The following was Desault's method, which, though it was expressly designed to fulfil all the above-mentioned indications, may not, after all, be a more valuable practical plan than the one adopted by Dr. Monro. After the ends of the tendon had been brought into contact, by moderate flexion of the knee, and complete extension of the foot, Desault used to fill up the hollows on each side of the tendon with soft lint and compresses. The roller, applied to the limb, made as much pressure on these compresses as on the tendon, and hence this part could not be depressed too much against the subjacent parts. Desault next took a compress, about two inches broad, and long enough to reach from the toes to the middle of the thigh, and placed it under the foot, over the back of the leg, and lower part of the thigh. He then began to apply a few circles of a roller round the end of the

all the parts unite in supporting each other, and the foot will be almost in a line with the leg, in order to bring the heel gradually to the ground, and thus to lessen the shock. I believe it often happens when the subject is fatigued, and off his guard, as in dancing."

To these remarks of Mr. Hunter's, let me add, that persons who are not always in the use of that exercise are more commonly the subjects of this accident, which I suspect may be accounted for, and imitated by a very easy experiment. The tendons have little life, and only a certain degree of elasticity. Now it is the property of all elastic bodies to bear frequent stretching, if allowed, with the same frequency, to recover their natural figure, and to bear very considerable stretching, if the

foot, so as to fix the lower extremity of the longitudinal compress. After covering the whole foot with the roller, he used to make the bandage describe the figure of 8, passing it under the foot, and across the place where the tendon was ruptured, and the method was finished by encircling the limb upward, with the roller, as far as the upper end of the longitudinal compress." (*Destult par Bichat.*)

The above passage is strongly characteristic of that reasoning on mechanical principles which is excusable in French writers, who hitherto have not been taught, that in all pathological reasoning they should apply their sole attention to the properties of life. Bichat has caught, indeed, some of Mr. Hunter's correctness; and when we consider the strength of his own genius, and the repeated proofs he shows of having studied Mr. Hunter, it is only surprising that he has not learned more from him.

force is gradually applied. But if, in the first instance, the force is repeated before the elastic substance is allowed to retract to its natural condition, the probable consequence will be a fracture. Of this I saw an instance whilst in Gibraltar bay.—A sailor, in a jocular manner, complained that his oar was so awkward, he would certainly break it, which he accomplished in less than a minute. Being asked by what means he became “so handy at oar-breaking,” he immediately informed us, that it was “only making a second tug before the blade had become straight.” In this manner I conceive a tendon, unaccustomed to the quick returning force which attends dancing, may give way. But as a tendon has the power of a living organ, it may be habituated to this sudden repetition; or by practice, the muscle may learn how to provide against it: for this reason, the accident, I conceive, so seldom occurs to professed dancers.

“The pain, (continues Mr. Hunter) is trifling. A sound is heard, the cause of which not being suspected, the patient conceives some one has struck his leg, and feels surprised that so slight a blow should prevent his walking. A cramp instantly seizes the muscle, because it was in full action, and that action has now nothing to restrain it. The patient usually presses his hand on his calf in such a

manner as to elongate the muscle. Finding some relief, he continues his attempt at elongating the muscle, and thus the broken ends of the tendon are approximated. Yet, still a small space remains, which may be prevented by raising the heel. If this posture of the parts is persevered in, the tendon unites without being elongated as it heals. But the disadvantage to the patient from not being allowed to walk will be ill compensated; and should the tendon even become elongated half an inch, the muscle will soon learn to contract in proportion.

“ The patient should therefore continue to walk, which he may do, though somewhat awkwardly; but without the least danger of contracting his gastrocnemius muscle: for, when a tendon is broken, the muscle attached to it will refuse to act, as if from a sense of imperfection.” This Mr. Hunter found experimentally in his own case, and afterwards convinced the Duke of Queensborough, who met with a similar accident, that no voluntary effort of his own would be equal to swelling the calf of his leg. All rollers for this purpose, he considered, therefore, as unnecessary whilst the patient walked. But there is a kind of involuntarily action, even of the muscles of the extremities, which we cannot always prevent. In sleep they may act of

themselves, and when we are in danger of falling, the muscles act before we are aware of it; consequently, without our will. To prevent the first, he admitted a roller during night; and respecting the latter, could only trust to the prudence of the patient, who would not be likely, in such a condition, to expose himself to the danger of any fresh accident.

I have dwelt so long on this event; first, to show how carefully Mr. Hunter directed his sole attention to the animal economy in every pathological inquiry; and next, because, by the extract I have made from a popular very recent and, I doubt not, meritorious work, Mr. Hunter's doctrine does not seem generally known, though practically confirmed by his own case more than fifty years ago, and certainly deserving some notice from such an authority.

We have no account from Sir Everard Home of Mr. Hunter's town residence till he settled in Jermyn Street. On his first arrival in London, he was probably lodged near his brother's dissecting-room, in Covent Garden. On his return to England, another writer informs us, that he resided in Golden Square. Thus the brothers, unconnected either by contiguity of residence, or by teaching in the same school, might easily preserve the terms of consan-

guinity. Hence we find, that in the year 1768, Dr. Hunter having completed the house in Windmill Street, in which his collection was deposited, and remained till its removal to the University in Glasgow, gave up to Mr. Hunter the lease of his house in Jermyn Street. In this house, which was commodious and well situated for private practice, Mr. Hunter lived ten years. He now became a Member of the Corporation of Surgeons, as the College was then called; and in the year following, through his brother's interest, was elected one of the Surgeons of St. George's Hospital.

In these dates, which are copied from Sir Everard Home, there appears the same irregularity as was before remarked. Another author tells us, that he was chosen to the hospital in 1768, and that he removed to Jermyn Street in 1770. This last is confirmed by Dr. S. Foart Simmons, who informs us, that in that year Dr. Hunter removed from Jermyn Street. Besides the authority of Dr. Simmons, and the hospital registers, which are open to every one, it will appear, that Sir Everard's dates are at variance with each other. In the above passage he informs us, that Mr. Hunter lived ten years in Jermyn Street; yet, in the progress of his history, he is described as continuing from 1768 to the expiration of the lease in 1783, a period of fifteen years. This

may appear a matter of little importance, but it serves as an apology for the other instances in which I have ventured to offer an opinion different from one who had such ample means of information.

Mr. Hunter had now acquired all that was necessary to give his talents and industry their full scope. He was Fellow of the Royal Society, and had a hospital. By the former he gained the earliest intelligence of every pathological transaction throughout Europe, and acquired the only title of any real importance open to every philosophical character: by the latter, he had not only the means of introducing, but of teaching, all his practical improvements, and of confirming his pathological doctrines. He had also another advantage—a means of at once improving his income, and of turning his industry to a still better account.

Most of the hospital surgeons have house pupils, who reside with them a year or two after completing their education in the country. By these means, the advantages they derive from their short stay at the London school is greatly improved. Mr. Hunter's temper was naturally kind to inquisitive young men; practical anatomy was constantly pursued at his house; and early notice received of whatever in Surgery was going on

in the different hospitals: most of all should be appreciated the continued intercourse and conversation with a man equally eager in acquiring and ready in communicating knowledge. Nor was the advantage to the teacher merely pecuniary; many experiments, if not instituted or entirely conducted, were greatly assisted by men in the vigour of youth and health, having no object but improvement, and to whom all the rich treasures of natural knowledge were presented in their fairest forms, aided by the charms of novelty.

It will easily be believed with what enthusiasm these advantages were embraced, and with what delight they are remembered. Dr. Jenner was early among the number of his inmates; and in every conversation, as well as in a private letter I had the honour of receiving from him, speaks with becoming gratitude of his friend and his master.

As this was the period when Mr. Hunter was least known, so it was that in which he could carry on his inquiries with the least interruption; and if not the happiest, was the most tranquil period of his intercourse with the world. We have seen that his circumstances were easy, which could scarcely be said at any other part of his life; and we shall find him at work in a manner highly gratifying to himself without the danger of exciting en-

vy in others, for, in fact, few knew what he was doing.

“ With the exception (says one of his Biographers) of what was published in his name by his brother William, in the year 1764, there does not appear to be any thing by John, on his return from the war, up to the year 1772. If there were any publications, they must have terminated like many more by others; they must have experienced the fate of abortions, or at least I know nothing about them. And here was an opportunity of ten years, which a man of true genius would have embraced. He would, though late in life, have laid that foundation of literature, which had escaped him in his earlier part; or he would have declined the vanity of public fame, for the private cultivation of useful knowledge. John Hunter did neither the one nor the other.”

We might consider the above as an encomium, were it not for the source from which we derive it, and for certain passages which seem to imply a different intention. Still it is the description of a man unambitious of fame, and regardless of emolument; intent only on acquiring useful knowledge, without the display of that learning which, however captivating and showy, is of little service in the investigation of Nature. It implies that Mr. Hunter was too honest to devote his valuable

time to the gaudy trappings of science. Had he cultivated school learning at the proper age, he might have written with more confidence; his language might have been more captivating, but his reasoning could not be more close, nor his descriptions more correct. In collecting human evidence, learning is absolutely necessary; and in exploring nature, we may be assisted by a knowledge of what has been done by our predecessors. But, in both cases, we are expected to consult the highest authorities; and in pathology, that authority is the volume of Nature. To this Mr. Hunter directed his whole attention; and, as Nature is always the same, it is not to be wondered if we often find him repeating what is to be met with in the most admired among the ancient writers. It may be thought, that by the advantages of learning, he might have acquired all this without the labour of experiment: that he might have collected the honey without exploring the fields. But was not this labour amply repaid, by keeping himself free from all the impurities of the hive, and from the danger of entangling himself in the wax?—To use common language, are not our quotations from antiquity more frequently ostentatious than useful? Since the great pains which have been taken to revive obsolete words in our nomenclature, do we find our practical knowledge

improved by it? It may, perhaps, be unfair to produce Mr. Hunter as an instance of the greatest accuracy with the least learning; but we may be allowed to cite the Nestorean wisdom of a Heberden, the oldest, the most learned, and certainly not inferior in integrity to any of the two generations of his contemporaries. Speaking of cutaneous diseases, in the attempt at classing which we have of late been encumbered with every language but our own, the following are among the words of this honest veteran:—"Several of the appearances here mentioned have been distinguished among the ancient physicians by peculiar names; there is great difficulty, though happily not much use, in ascertaining the appearances to which these names were appropriated."—Such was the opinion of one who had devoted the proper season of his life to those studies which enabled him to form a fair estimate of their worth in a profession which he afterwards pursued with so much zeal, and for so many years.

No doubt the accumulated knowledge of antiquity may assist us in our inquiries. But we shall find, that Mr. Hunter, in many instances, discovered in nature what was recorded by the ancients, yet overlooked by their greatest admirers; and that he acquired a correctness in the choice of his words supe-

rior to many who enjoyed all the advantages of learning.—To prove the first, it will be surely enough to produce a passage from a scholar and a teacher of medicine, in which Mr. Hunter is accused of borrowing from the Greek writers a doctrine unattended to till he revived it.

“That people were disposed,” says the learned Dr. Crichton, “to certain diseases from birth, as well as from the operation of accidental causes, was an observation of a mere matter of fact, which was taken notice of by the Greek physicians, who denominated this cause of disease *εργασμενη*; but a certain inaccuracy of expression, in regard to predisposition, has introduced itself into the writings of many medical men since these early times, and has induced them to call certain diseases hereditary diseases. This inaccuracy has probably been caused by the constancy with which hereditary disposition operates; but it gave occasion to the late Mr. J. Hunter to ridicule the expression, and to assume the old observations of the Greeks as one of his own discoveries.”

Thus an “observation, or mere matter of fact, taken notice of by the Greek physicians,” was overlooked by the most profound scholars for nearly two thousand years, and at length revived by Mr. Hunter. Justly as my departed friend is entitled to this compliment,

I should almost have suspected my own partiality, had not the fact been thus confirmed. I would not, however, have the reader to suppose, that, like Dr. Crichton, Mr. Hunter confuses *disposition* with *predisposition*; both of them "*with accidental causes*;" or that he ever uses such an expression as the "*constant operation of hereditary disposition*." Like all those philosophers who have improved science, he saw the necessity of first attending to accuracy in the use of terms, and with him all these terms considered synonymous by others have an appropriate and well defined meaning. Equally unjust is the accusation, that he "*ridiculed the expressions of other writers*." Habitually correct himself, he always gives others credit, where he can, for the same accuracy; and when he differs, seems to do it with some expression of doubt on his own part.

To prove this, I shall now produce an example of a reformation in our language, in which he may be as fairly accused of plagiarism, from a standard work on etymology, published nearly twelve years after his death, as of "*assuming for his own the expressions of the Greek fathers*."

The term coagulable lymph has been adopted by all the later physiologists, whatever may have been their opinion concerning the properties of the blood. Mr. Hunter's objec-

tion to it is so pointed, that it might serve as a grammatical example.—“The term coagulable,” says he, “is more properly applied to substances which might be made to coagulate (are coagulable) only by chemical means.—Perhaps,” continues he, “*coagulating* might be better applied to what is usually called coagulable lymph, and the epithet coagulable might be reserved for those fluids which require a chemical process to produce that effect.”

Mr. Horne Tooke calls these terminations in *able* the potential passive participle. Nothing can be more exact than Mr. Hunter's illustration in restraining the word “coagulable to substances requiring a chemical process to produce that effect.” Potential, inasmuch as it is a condition in which they *may* be found; Passive, inasmuch as they have not the power of assuming that condition, but only *suffer* such a change by force; and a Participle, inasmuch as the abbreviation or winged word is most conveniently added to a verb.*

It may be urged, that usage has long ceased to confine this termination to a passive signification. Though this apology may be admitted in looser compositions, it is altogether

* Treatise on the Blood, page 16, Quarto Edition, 1794; Diversions of Purley, Vol. II. chap. viii. anno 1805.

inconsistent with philosophic correctness. As the above etymologist remarks: "To say that the same word was used with two almost opposite ideas, viz. To feel, and to be felt; To beat, and to be beaten; would be just as rational as to say, that the same word should be purposely employed in speech, to signify the horse which is ridden, and the man who rides him."

This is only one of numerous instances which might be produced, and many of which have been produced,* in which Mr. Hunter's accuracy of thinking induced, as it always must, a corresponding accuracy of language. The student, who feels dissatisfied with undefined expressions, can alone estimate the importance of such accuracy; and to him it will become familiar, with only the trouble of re-perusing the above passages.

These two examples are enough to shew, that if Mr. Hunter's language was not always strictly grammatical, it was perspicuous to those who knew the value of his facts, and were willing to explore them; and that how much soever we may lament his early inattention to school learning, he was at this time much better employed than in studying the classics.

* See Introduction to "Morbid Poisons;" also the Appendix to this Life of Mr. Hunter.

In the year 1772, when scarcely known but by his relationship to his brother, an appearance in the stomach was familiar to him, which had been entirely overlooked by all former anatomists, and the explanation of which was so satisfactory to Sir John Pringle, who had devoted his life to medicine, had made several experiments on digestion, and was at that time President of the Royal Society, that he would not suffer the discovery to be completed before it was read to that learned body.

The introductory account of Mr. Hunter's paper on the Digestion of the Stomach begins thus: "The following account of the stomach being digested after death, was drawn up at the desire of the late Sir John Pringle, when he was President of the Royal Society; and the circumstance which led to this is as follows;—I was opening in his presence the body of a patient of his own, where the stomach was in part dissolved, which appeared to him very unaccountable, as there had been no previous symptom which could have led him to suspect any disease in the stomach. I took that opportunity of giving him my ideas respecting it, and told him, that I had been long making experiments on digestion, and considered this as one of the facts which proved a converting power in the

gastric juice. I mentioned my intention of publishing the whole of my observations on the subject at some future period ; but he desired me to give this fact by itself with my remarks, as it would prove that there is a solvent power in the stomach, and be of use in the examination of dead bodies."*

Sir John saw the truth and importance of the theory, but not having traced it, like its discoverer, through all its bearings, he was not aware of a difficulty, which probably Mr. Hunter would have explained had he been permitted to work on it a little longer. It is not to be wondered, if he soon after became too much occupied in other inquiries to add any thing to a paper after it had been submitted to the public, and after the fact on which it rested had been ascertained by the testimony of such an eye-witness.

Such we see Mr. Hunter's situation. Anxious only to acquire knowledge, and forced to communicate that knowledge, in an imperfect form. Encouraged by all, because the few who saw his superiority were too much elevated in popular opinion and public rank to fear him, whilst his juniors, delighted at the information they received, and the diligence which he inspired, were at once his

* Animal Economy, p. 183, 1st, edit. For a further account of this important question, see Appendix to this work,

echoes and his imitators. But this tranquillity can only be temporary; talents must discover themselves; they must excite Jealousy, the parent of Envy and Detraction.

“ Estavas — posto em socego —

“ De teus annos colhendo doce fruto

“ Naquelle engano da alma ledo è cego,

“ Que a fortuna não deixa durar mûto.”

It may be thought, by those who see little of the weaknesses which attend the most exalted walks of science, that superior talents should always look with contempt on the feeble efforts of those who, unable to ascend such heights, are only anxious to bring others to their own level. But man, in his most finished form, is a very imperfect animal. — If the youths of the hospitals crouded round Mr. Hunter whilst the other surgeons were in the house, this was no fault of his; but if he made his colleagues feel his superiority; if he shewed impatience whilst they talked of dangers from the absorption of pus, of the importance of ascertaining, and the means of distinguishing pus from mucus; with many other, before his time, equally venerated errors, we can only regret, for his own sake, that he was unable to repress his feelings.

e It may be urged by some, that such concealment would have endangered his moral.

character. If so, we must approve his conduct; yet, it may not be amiss, on these occasions, to warn every future genius against such dangers, and remind him of the means by which they may be lessened. If he sees the weakness of others, let him be cautious how he makes them feel it. Let him observe how well men of inferior talent are received, because their dullness passes for modesty; and let him, at least, assume that virtue even as a means of acquiring knowledge. Should he fancy it more manly, boldly to assume his rights, let him reflect on the uncertain result of his own experiments; the danger of hasty conclusions; and, most of all, the advantage he may derive from conversation, as long as he lends a flattering attention to others, and reserves his own attainment till they are called for.

In this manner there is reason to believe Mr. Hunter conducted himself, from a sense of gratitude, respect, and prudence towards his brother; and if he occasionally forgot himself, we can only impute it to a weakness, from which no mortal is entirely free—to an independence of temper which steals upon us as we find we may venture to indulge it.

But Mr. Hunter's enemies were not confined to his own household; and it must be admitted, that when restrained neither by af-

fection nor gratitude, he was less delicate in his advances. Those who now perceive his gigantic force of intellect, may wonder that he should concern himself with the puny theories of others, who, compared to their contemporaries, had, indeed, a claim to some superiority. It should, however, be recollected, that knowledge is at best only comparative; and that, by the most enlightened, it can only be acquired by intense and well-directed diligence. In this manner, all his own knowledge was matured before the world was aware of his operations. When such a man heard crude doctrines received as discoveries, it would be natural to recollect his own labours, and the caution with which his own inductions had been formed. If, therefore, he sometimes undervalued the opinions of others, it should be imputed to the same want of prudence which he evinced in every other department connected with his interest.

If we could expect, indeed, to meet with such genius, such industry, such integrity, such willingness to communicate, and such readiness to acknowledge the imperfections of his own researches: if we could meet united with all this, a gentleness of manners which might dismiss all others from his presence with a higher opinion of their own personal consequence, we should meet with what may li-

terally be called policy; but it may be questioned, whether the interests of morality or philosophy might not suffer. Such certainly is not the character of those who are deemed the best of men, nor is it always consistent with a conscientious and amiable desire to improve others. What are the anecdotes reserved of Socrates, but a series of conversations, in which he endeavoured to show others, by gentleness or severity, how much they had to improve themselves in morals and in science? What is the example of those martyrs who are held out as objects of our imitation? Were they backward in informing those who considered themselves the oracles of knowledge, or in reproving others, who held themselves out as examples of piety?

It is true, as was before remarked, there are different modes of doing this: But by the examples just given, we see, that none of them are safe; and if Mr. Hunter, and some other equally elevated geniuses, did not die by the hands of the public executioner, it was, perhaps, only because they lived in an age in which a different mode of destruction is practised. All that merit can now suffer from envy is consignment to obscurity, or an accumulation of calumny, when it ventures to appear abroad. Mr. Hunter could not remain obscure; and though, for a time, we find

him, without difficulty, consigning himself to comparative poverty, yet the rank in which he was now placed required a publicity inconsistent with his former retirement. To his honour be it spoken too, though he had all the correctness and diligence of a true philosopher, he had not the coldness of which the order is so generally accused.

At his age, and with a mind like his, it was impossible not to feel a wish for the more constant society of a Lady, to whom, it appears, he was at first introduced by a similarity of professional engagements with her father. This Lady, besides her personal endowments, must have been peculiarly agreeable to her philosophical lover, from the delicacy and correctness with which she attended to the fine arts. Though Mr. Hunter had little relish for poetry or music, yet he could not be insensible to those physiological inquiries by which we learn the sources of that delight which others derive from them: and nothing could be more agreeable during the moments of relaxation, than information thus acquired by fascination. Nor can there be a doubt that the gratification was reciprocal, as far as Mr. Hunter's studies were consistent with female delicacy: for, however dull many of the details of comparative anatomy might be, yet the habits of various

tribes of animals never fail to interest every feeling mind.

Such an intercourse could not but incite a mutual wish to protract every conversation, to renew and to render them permanent. But the same attachment would forbid any union which might prove inconsistent with the happiness of its object. Hence, we are informed "the expences of his pursuits had been so great, that it was not for some years after his first engagement with this Lady, that his affairs could be sufficiently arranged to admit of his marriage," in July 1771, to Miss Home, eldest daughter of Mr. Home, Surgeon of Burgoyne's Regiment of Light Horse. "Whilst he was paying (continues Sir Everard) his addresses to my sister, Miss Home, I was a boy at Westminster School. During the holidays I came home; and Mr. Hunter, who was frequently there, always shewed me particular kindness: he made my father an offer to bring me up to his profession; a proposal which I readily accepted. I was struck with the novelty and extent of his researches; had the highest respect and admiration for his talents, and was ambitious to tread the paths of science under so able a master. It is a tribute which I owe to his memory to declare, that an intimate knowledge of him for twenty-one years has

increased my admiration of his uncommon exertions, and my respect for his abilities.

“ After finishing my education at Westminster School as a King’s Scholar, and being elected off to Trinity College, Cambridge, I found, that no advantages which could have been derived from a Scholarship in the University, would compensate for the time I must have given up, in keeping my terms, to the disadvantage of my chirurgical education. I therefore thought it prudent to forego my claims upon the University as a King’s Scholar, and instead of going down to Cambridge, though elected, went immediately to Mr. Hunter.”

It is pleasing to add these to the former tributes of gratitude to the memory of this great and amiable character.

“ At this time,” the same Biographer remarks, “ Mr. Hunter’s private practice and professional character were advancing very fast.” That Mr. Hunter’s professional character was rapidly increasing cannot be questioned. But this is at first only among the profession, who, till his fame is more generally known, would find it sometimes difficult, and not always suitable to their feelings, to introduce him in consultations. It is slowly that the public arrive at a medical man’s character; and when they do, his family practice

must at first be much confined to those of an age not to have formed previous connections. It is only as his elders depart that he can expect that steady business; and last of all, the emolument from general consultations. That Mr. Hunter continued long after this, if not embarrassed, at least with nothing before-hand, appears from what has been just related, and even from Sir Everard's account of himself six years after, to which we shall presently return.

Hitherto Mr. Hunter was only known to the world by his papers in the Philosophical Transactions and other collections. About the period of his marriage, he published a book for the first time. There is some reason to believe his object was partly to assist himself in his new expences. I suspect this, because it is the only work he ever sold to the trade; and he often told me, whilst preparing his great practical Essay, that though he had sold his "Teeth," he was determined nothing he ever published hereafter should become a bookseller's job, every new edition rendering the former useless. The "Teeth," however, can scarcely be said to have gone to a reprint, the second part being only tacked to the first under the name of a new edition. Yet this Treatise, though composed, as he informs us, only seven years after he commenced his

anatomical engagements, is still a much more complete performance than any which has since appeared; and the engravings are also by the first artists of the time. It may be asked, why then is it not universally referred to? or why has any one ventured to publish another, and in some respects inferior Treatise? To this I can only answer, by presuming that Mr. Hunter's work, containing a more exact representation of the operations of Nature, requires time and application for the reader to make himself master of the doctrine, and that the generality of medical men, from their multifarious concerns, prefer books which are so plain as to require no study, because they contain no information;—that Mr. Hunter, conceiving what he saw and could demonstrate must be readily understood, described only his facts, without being aware of the necessity of those illustrations by which the mind may be kept attentive to a series of demonstrations, inconsistent with doctrines very generally received. More than one or two writers have expressed their surprise, that Mr. Hunter should assert the teeth are not vascular. Mr. Hunter is too cautious to say more, than that he never, by any injections, could discover vessels in their substance. Mr. Fox thinks, “it is very extraordinary that Mr. Hunter should consider the

teeth as devoid of internal circulation and of the living principle:" Mr. Hunter describes a circulation in a cavity formed in their internal part, and proves incontestibly that they have a living principle. But he could never discover this internal circulation in the substance of the teeth, or beyond the pulpy substance contained in their cavity; the living principle he found different from that of other bones, being no way dependent on the health of the subject; and that in rickety subjects, when almost every bone is distorted, and in its texture different from healthy bone, yet that the teeth retained their figure, their health, and continued their growth. From all these circumstances he conjectured, that the life of a tooth might be similar to that of an hydatid drawing its nourishment from the neighbouring parts without any communication of vessels, resembling those parasite plants which have an œconomy of their own, independent of the tree on which they are inserted, excepting as far as they derive their nourishment from it, without any communicating vessels or fibres.

It is unnecessary to enter into this disquisition any further. It would be easy to show that many of the properties of the teeth can be accounted for on these and on no other principles; as, however, the fact is not yet

with certainty proved, Mr. Hunter has built no practical theory upon it. But a much more important consideration is overlooked by most writers since his time, namely, the existence and consequence of inflammation in the teeth. A very ingenious Dentist has considered the common caries as the effect of inflammation, and expresses his surprise, that Mr. Hunter had not discovered the same. In answer to this, we may remark, that Mr. Hunter, or any one else, might have conjectured all this, but that the difficulty would remain to prove it. Mr. Hunter shows, that the consequence of high and continued inflammation in the teeth is often mortification, not of a speck, as in caries, but of the whole body of the tooth; and that many teeth might be saved, if, instead of looking only for the disease peculiar to them, as the cause of tooth-ach, we were to consider the inflammation and relieve it before the teeth suffered irreparable injury. That to do this, we are not merely to examine the teeth, and feel astonished that they all appear sound, whilst the patient complains of intolerable pain; but that we are to subdue the inflammation in the surrounding parts by the common process of treating that disease.

It was between the appearance of the first and second part of this treatise that Dr. Fothergill published his paper on that painful affection of the face called Tic Douloureux. As

As that paper was read before a society of which Dr. W. Hunter was president, it is probable that the disease had been a subject of conversation among all the parties.

In 1773, Mr. Hunter first made up his mind to become a public lecturer; his reason for which was usually explained as often as he began his course.—That he was frequently hearing his opinions either incorrectly quoted, or delivered as the discovery of others; till, at last, he found it absolutely necessary to explain them systematically. This he did at first in company with some of his medical friends at stated meetings, till his papers increased upon him almost to the amount of a course of lectures: he dwelt much, at the same time, on the advantages every man derives from putting his thoughts into writing. “It resembles (said he) a tradesman taking stock; without which, he never knows either what he possesses, or in what he is deficient.”

It is not improbable, that a consciousness of the difficulty he found in making himself understood might have been among his motives: for in that paper, which gained him at so early a period the highest eulogium from the first physiologist in Europe, he complains, “This is a circumstance which, I think, may be easily understood, and yet this does not appear to be the case; for I find students very generally

puzzled with it, imagining that when the testis comes down, it should be loose all round." This expression of surprise shows how little he was at that time aware of any difficulty in making others understand what appeared simple to himself, as if forgetful of the time and labour the discovery had cost him. Convinced of it in the progress of teaching, he encouraged conversations with his hearers after each lecture, that he might learn whether any of his positions were ill supported, how far his mode of expression was perspicuous, and in what manner he might render himself most intelligible.

For the two first winters the lectures were gratuitous to the pupils of Saint George's Hospital. In 1775, they were first publicly given on the terms of other teachers. For this, or for continuing them, there could be no pecuniary motive. As he was under the necessity of hiring a room and lecturing by candle-light, his emoluments must have been trifling. The lectures not being considered a necessary part of the medical education, his class was usually small: and of the few that heard him, the greater part acknowledged the difficulty they found in comprehending him, which was often proved by their incapacity of keeping up their attention. This may be partly imputed to his lectures being read from a copy transcribed by another hand. A lecture

delivered in this manner must lose much of its interest, from the eye of the teacher being always directed to his book. Nor is this the only disadvantage. In writing, we wish to express ourselves with as much brevity as possible, provided we conceive ourselves perspicuous; and, most of all, to avoid tautology; because if the reader loses his attention for a moment, he can easily turn back to the preceding passage. But if the whole is read to him publicly, his mind must be always on the strain. If he relaxes for a moment, or even doubts whether he perfectly comprehends the lecturer, every inference drawn from such a passage is incomprehensible, or even misunderstood. In this respect, a lecture on physiology differs entirely from a moral lesson. In the latter, the subject is admitted by the hearer, so that close or abstract reasoning would be altogether misapplied, and the merit of the teacher depends on the force with which he expresses himself, or the interest which he can infuse. In such a case, tautology is not only unnecessary, but disgusting; and the teacher, unless gifted in an extraordinary degree, should read, or previously learn by heart, what he delivers. But in matters of philosophy, a frequent repetition of the same thought delivered in different words, a recurrence to the facts or inferences on which the conclusion

is built, is often absolutely necessary; and the hearer, instead of being tired by such reiteration, is usually pleased at the consciousness of having comprehended his master. All this while we are to presume that the subject is new to him; and such was the case with all Mr. Hunter's doctrines, even to those who conceived that they had completed their medical education.

The task of lecturing, even with his copy before him, was so formidable, that he was obliged to take thirty drops of laudanum at the beginning of each course. Yet he certainly felt great delight in finding himself understood, always waiting at the close of each lecture to answer any questions; and evincing evident satisfaction when those questions were pertinent, and he perceived his answers were satisfactory and intelligible.

The answers relating to subjects immediately before explained, were always so ready and so perspicuous, that I frequently wished he could have assumed courage to lecture extempore, or with short notes. Indeed, his mode of giving an opinion in consultation was very similar to a lecture; for on account of the novelty of his doctrines, he usually found it necessary to illustrate them by introductory matter, or some previous history, before he could explain himself. Such, we are informed, was,

and indeed ever must be the case, with those Philosophers who have most improved human knowledge.—“ Discoverers, (says Dr. Pemberton*) when they have occasion to produce their knowledge, are, in some measure, obliged immediately to investigate a part of what they want. For this they are not equally fit at all times, so that they will often appear less ready than others ; who, trusting to their memory, have fewer difficulties in delivering an opinion.” In short, Mr. Hunter, instead of offering theories, only described facts : to be master of a theory, it is only necessary to understand the author’s intentions : but, to comprehend a series of facts, and their connection, it is absolutely necessary to retain all the chain and connection of parts and of actions, and to combine them together, before we can be satisfied with, or often comprehend the result. Of this, the occurrence of every day’s events must convince us. Sir Walter Raleigh could write a most perspicuous History of the World, and even ascertain the precise power permitted to, or possessed by, the Devil ; yet found himself much at a loss, as soon as he wished to become master of events which passed under his own window.

“ It is curious (says Sir Everard Home)

* Life of Sir Isaac Newton.

that the fundamental doctrines of these lectures, which constitute the principal part of the present work, should be the last of his publications; and that his anxiety to render them complete, should make him patiently revise and correct them for twenty years, before he gave them to the press."—Those who are aware of the great importance of tracing all the laws of inflammation, and the part the blood takes in it, will not be surprised at Mr. Hunter's anxiety to render his new doctrine as complete and as intelligible as possible. It is very true, that the fundamental doctrines delivered in his lectures are contained in his treatise, because a minute knowledge of the process of inflammation is the foundation of all surgical knowledge; but how inconsiderable a part of his practical remarks are to be found in this work!

Having now a settled mode of life, fair prospects, and a daily increasing reputation, Mr. Hunter indulged to the utmost his favourite pursuits. These were Physiology, more particularly as connected with Pathology. Inflammation, whenever it occurred, he perceived to be the most common cause of organic lesion. Besides his accurate investigation of the laws of inflammation immediately after injuries, and in every sub-

sequent stage of a wound, he excited it artificially in order to trace the progress of it in parts; according to the difference of their structure, situation, or functions. In doing this, he soon discovered the importance of the blood; and that, to detect the share it has in health, in disease, after accident, and under violence, his business should be to observe, not how he could distort it by fire or other chemical agents; not the mechanical figure of its various constituent parts, under the uncertain inspection of the microscope; but, the form it assumes in health, in its natural situation, in or out of its vessels, in and out of the body, and its changes, according to the condition of the whole animal, or of individual parts. All this was so new to the most able practitioners then living, that we can scarcely wonder if, when his opinions were retailed, with mutilations or additions, he should share the fate of Democritus, who was considered by the uninformed as a madman; but by the greatest physiologist of the age,* as the wisest man in Abdera.

But the world saw other talents in Mr. Hunter, which, though less important to the healing art, were more showy, and within the compass of every one's ken. We have seen

* See Haller, *ut supra*.

that the then President of the Royal Society forced from him, in an unfinished state, a most important discovery on digestion; yet this, though published in the Philosophical Transactions, attracted no notice till ten years afterwards, when, as will hereafter be shown, Mr. Hunter was ill understood, even by a learned Judge on the Bench: so difficult is it to direct the mind into a new train of facts; or for one, chiefly accustomed to written law and human records, to reason from the phænomena of Nature. Yet whilst these important discoveries in the functions of the human body were unnoticed or ill understood, Mr. Hunter's inquiries into comparative anatomy attracted universal attention. All the peculiarities of the torpido and of the gymnotus electricus were submitted to his examination: a dead elephant, a curious pheasant, the free martin, the gillaroo trout, all found their way to the man who was never weary of investigating, always happy in communicating, and whose Reports on these subjects were readily understood and never contradicted.

Every naturalist is aware of the great difficulty that attends preserving those parts of animals, which, on account of the organs to which they are subservient, are often the most interesting to the philosopher. In disease, the

importance is far greater, and the difficulty also; as the minuter vessels, if preserved in spirits, cannot always be distinctly seen. It was therefore necessary to have them drawn, either at the moment, or before they were put into bottles. But the expence of employing professed draftsmen, the difficulty of procuring them, and the disadvantage which they labour under from ignorance of the subject, renders the constant attention of the anatomist absolutely necessary. From these considerations, "Mr. Hunter engaged an ingenious young artist to live with him for ten years; his time to be employed not only as a draftsman, but in making anatomical preparations. This gentleman, whose name was Bell, soon became a very good practical anatomist, and from that knowledge was enabled to give a spirited and accurate resemblance of the subjects he drew, such as is rarely to be met with in representations of anatomical subjects. By his labours, Mr. Hunter's Collection is enriched with a considerable number of very valuable drawings, and a great variety of curious and delicate anatomical preparations."

Mr. Bell very soon imbibed the ardour of his employer, retaining all the diligence of a Tyro, with the modesty becoming that character. He worked continually with his knife, his

forceps, and pencil, for a term not less than ten years, during which he was also engaged in copying Mr. Hunter's lectures. By this time he could not fail to become "a skilful anatomist and good practical surgeon." In the year 1789, he received an appointment, as assistant-surgeon, in the service of the Honourable East India Company, for the settlement of Bencoolen, in Sumatra. This appointment, procured by the friendship of Sir Joseph Banks, he accepted with a double view; the one to improve his fortune, the other to collect specimens in natural history. In both these pursuits he was successful beyond his most sanguine expectations: he sent home some very rare specimens of animals and corals, and two papers, since printed in the Philosophical Transactions, one on the double-horned Rhinoceros, the other giving a description of an uncommonly formed Fish; but, unfortunately for science, he died of a fever, very much regretted by his friends, in the year 1792."

How much is it to be lamented that so useful a character should have found no employment at home adequate to his talents and industry! or did prospects of aggrandisement induce him to prefer the fiery climate of Sumatra to the calm retreat of the dissecting-room? Engaged as he was in practical surgery,

how much must we lament too, that amongst his communications, nothing appears concerning the diseases of the country: a proof, among many others, how unequal the human mind is to become extensively useful in more than one pursuit! Happily for science, his successor, Mr. Cliff, remains, to luxuriate amid the delights of the Hunterian Collection, and to enrich it under the auspices of a well-endowed College.

About the year 1776, the efforts of the Humane Society very much occupied the public attention. Dr. Cogan had first introduced the subject from Holland, and the industry of Dr. Hawes, by never suffering it to rest, at last produced a royal establishment. It was not likely that the labours of Mr. Hunter should be spared on this occasion. The consequence was, a paper produced before the Royal Society, in the year 1776, containing "Proposals for the Recovery of Persons apparently drowned." This title is transcribed at length from the "Animal Economy," because one of his Biographers has miscalled it, "On the best Mode of recovering drowned Persons." Mr. Hunter seems the only person aware of the difficulties attending the question, and that very circumstance made him as cautious in his language as we shall find him on all other occasions. In this paper, which is the founda-

tion of every thing rational that has since appeared on the subject, a distinction is first made between absolute death, and a mere suspension of the actions by which life is supported. This is illustrated by the long suspended actions of life in certain animals, and, under certain conditions, for a shorter time in man, without the loss of vitality.

An inquiry next follows concerning the different modes of dying, whether by disease or accident; in both of which he gives a further illustration of the difference between the mere cessation of actions and absolute universal death. The latter he shows sometimes takes place immediately on the cessation of all the actions of life, but that more commonly the parts retain life for some time after such actions have ceased. This led him to explain the reason why, under certain circumstances, every attempt at resuscitation must be vain. And in the enumeration of these, and the various causes which might produce each, if he had not his own death in view, he has at least described its immediate cause, and its more obvious effects, with a perspicuity which could not have been exceeded if he had attended the examination of his own corpse.

The paper also contains a description of many signs of life and death, which have been since too much overlooked. They will be

better introduced by some remarks on the paper itself. At present, I shall only notice what may be called a vulgar error; but, like many others of the kind, it is only erroneous in the mode of expression, the external phenomena being very correctly marked. People who live much on the water have a mistaken opinion, that when a dead body floats, it is because what they conceive *its swim* is broken; and if this floating takes place soon after death, they conceive it arises from the swim being broken in the act of dying, or immediately after. Mr. Hunter's paper readily explains the cause of this variety in the period of floating, and the source of the erroneous opinion.

The immediate floating of a body after death will depend on the accident of a person ceasing to breathe with the lungs full of air, or after contracting the thorax. If in the latter condition, the period at which the body becomes buoyant will depend on the commencement of putrefaction, by which air will be extricated, and filling all the cavities of the body, will expand its surface, and render it lighter than water. If absolute universal death takes place at the moment of the accident, putrefaction follows with the same rapidity, and the body sooner becomes buoyant. If, on the contrary, the parts retain their life, though the actions by which life was

supported cannot be maintained, putrefaction will not commence till life ceases: air, therefore, will not be extricated, and the body will be a long time before it floats. By a proper attention to this difference, Mr. Hunter explained how it happened that, under some circumstances, no industry or skill could produce reanimation, after an immersion comparatively short to what had occurred in other more successful instances.

This paper was presented to the Royal Society in the year 1776. In the same year, Mr. Hunter was made Surgeon Extraordinary to His Majesty. "In the autumn," Sir Everard Home observes [it appears by another passage that it was late in the spring], "he was taken extremely ill; and the nature of his complaints made his friends, as well as himself, consider his life to be in danger. When he reflected upon his own situation, that all his fortune had been expended in his pursuits, and that his family had no provision but what should arise from the sale of his Collection, he became very solicitous to give it its full value, by leaving it in a state of arrangement.

"As soon as he was able to leave his room, his first object was to make a Catalogue of his Collection; but his health requiring him to go to Bath, I was employed, with the assistance of Mr. Bell, during his absence, in

making descriptions of the preparations, leaving blanks for such as I was not acquainted with. His complaints were a good deal relieved, but his impatience to return to town made him come back before he was well; he continued, however, to amend, and very soon recovered.

“ In 1778, he published the second part of his Treatise on the Teeth; in which their diseases, and the mode of treatment, are considered. This rendered his work upon that subject complete. He published also, in the Philosophical Transactions, a paper on the Heat of Animals and Vegetables,” on which the reader will not be displeased with a few anecdotes and remarks, highly characteristic of the author. The following is the introductory part of this paper :

‘ Some late ingenious experiments and observations, published in the Philosophical Transactions, upon a power which animals seem to possess of generating cold, induced me to look over my notes, containing some which I had made in the year 1766, indicating an opposite power in animals, whereby they are capable of resisting any external cold while alive, by generating within themselves a degree of heat sufficient to counteract it. These experiments were not originally instituted with any expectation of the event which resulted

from them, but for a very different purpose; which was no other than to satisfy myself, whether an animal could retain life after it was frozen; as had been confidently asserted both of fishes and snakes. *If I had succeeded, I meant to have tried the effects of freezing, on living animals, to a much greater extent than ever can happen accidentally.* For that snakes and fishes, after being frozen, have still retained so much life, as when thawed to resume their vital actions, is a fact so well attested that we are bound to believe it."

The reader will remark, that these experiments had been made ten years before they were offered to the public, that is, ten years earlier in the author's physiological career; and also, that the passage in italics is omitted in his second edition of *Animal Economy*. The whole process was related much more at large in his lectures, with a most interesting little circumstance, which shows the great anxiety for knowledge in the Experimenter. Finding that the above animals might be frozen without the loss of life, he was desirous of ascertaining how far this property might be extended to man, and not without hopes of protracting life by a long cessation of action, so that, at the end of a certain period, he might be able to ascertain the progress of knowledge during his long *hybernation*, which would en-

able him to carry his inquiries still further.—

‘ I own (says he) I once thought that heat was owing to a constant decomposition going on in the system; but my experiments on two carp, which I could not freeze till they died, convinced me of my mistake concerning the possibility of prolonging life to any period, by freezing a person in the frigid zone, in which condition I fancied action and waste would cease till he thawed.

‘ The carp were put into water in a vessel placed in a freezing mixture. The water round the edges of the basin soon froze, but not about the fish. I added snow: this thawed also. At length, by adding more snow, and leaving them in a cold atmosphere, they at last froze, but never showed any signs of life when they thawed. Till this, I fancied, that if a man would give up the last ten years of his life to this alternate oblivion and action, I might prolong it for a thousand years, by thawing him every hundredth anniversary, when he might learn what had happened during his frozen condition, being thawed to precisely the same condition at which I froze him. I even fancied, like other schemers, I might make my fortune by it.’—*Extracted from my MS. copy of Mr. Hunter's Lectures.*

Having found, in the course of his experiments, that even fish would so far resist cold

as to expend all the powers of life, before they could be frozen, he made his experiments on animals accustomed to be torpid in a certain degree of cold. But he could never freeze dormice without killing them. Toads never recovered from the experiment; but as they continued to live, he conceived they were not frozen. Snails died.

He then adds, 'Why the animals mentioned in these experiments died before they were frozen, while those which are exposed to the atmosphere in very cold climates do not, is a point I shall not pretend to determine; not knowing the difference between the effects of a natural and artificial cold. It may be accounted for, by supposing that the natural cold in climates in which animals are found frozen, is so intense as to produce congelation immediately, before the powers of life are exhausted; at least, whether it is so or not, is worthy of inquiry.'

May I be allowed to suggest a doubt whether, in such climates, certain changes do not take place in these animals, according to the seasons, as we see in birds even when domesticated and fostered with care; in others the change seems less, in proportion as they are removed from a state of Nature. We find horses change their coats less in proportion as they are well covered and well

well fed. In hybernating insects, it is very easy to bring on a torpid state, by confining them in the air which they have respired; but if this is continued long in a temperature higher than that of their hybernation, they die, probably suffocated by deteriorating the air from a more frequent respiration than in their natural state of torpidity. It may be thought, that if the dormouse had been exposed to this excessive cold whilst in a torpid state, it might have escaped; but it should be remembered, that hybernating animals retire for the most part to recesses in which the temperature varies but little. I have known several attempts to keep dormice during the winter in the open air, but they all failed. Commonly, the animals awoke on a warm day in the winter, and probably, died from the causes assigned by Mr. Hunter, in the account of his experiments on lizards. It is plain, by his remarks on the toad, that he had carefully considered all the various habits of different hybernating animals.

In returning to Mr. Hunter's life, I shall insert part of Sir Everard Home's history of himself, as it affords a fair description of his master.—“ I had now (continues Sir Everard) lived six years with Mr. Hunter, and had completed my education: his expences had always ex-

ceeded his income; I had therefore no emolument to expect from remaining in his house, which made it necessary for me to take up some line for my own support; and Admiral Keppel's action with the French fleet was the means of procuring me a very eligible situation."

The above paragraph, relating principally, as the succeeding one does entirely, to the Biographer, would have been omitted, had it not shown, in the most useful of all human occupations, how slow was the emolument of a character whose name resounds throughout the civilized world, whose Collection makes no inconsiderable boast of the metropolis, and "whose labours," to use the words of one of his adversaries, "have done more to improve the science of surgery than all other Surgeons of Europe, with all their works, had done before him."* Mr. Hunter had now arrived at his fiftieth year, thirty of which had been devoted to the profession. He had enjoyed such means of improvement as few, if any other person, could boast; he had improved them with a diligence never exceeded, and with a capacity far beyond all comparison. His introduction to the public was not less favourable: immediately on his appearance in London, he was attached to the first

* Edinburgh Review of Mr. Abernethy's Introductory Lecture.

and almost the only anatomical school; in which, soon after his arrival, he became the principal instructor in the practical branch. He had been eleven years member of the Royal Society; and nine a hospital surgeon. He had gained the highest reputation as an army Surgeon; was noticed, admired, and respected by the most enlightened characters of the age, and had enjoyed the patronage of his brother, at that time in high credit with the first nobility, and with Royalty itself. Nor does it appear that he had been engaged in any extraordinary expences. The ground in Earl's Court had been purchased, and the house erected, twenty years before. For the last seven years his town residence was in Jermyn Street, without additional rent. Here the principal rooms were devoted to his Museum, and practical dissection was carried on in other parts of his house. Though his family had increased, only two survived, and these were still of an age to be but little expensive; a becoming oeconomy, there cannot be a question, prevailed in every department, and his personal expences were confined to his preparations; yet, five years after this period, when he purchased a leasehold in Leicester Square, he assured us that he was under the necessity of mortgaging before he could pay for it. For some time afterwards he used to regret,

that all he could collect in fees went to carpenters and bricklayers, whilst the sum expended, as we shall presently see, was scarcely sufficient to furnish the library of a literary character. As, however, this subject will necessarily occur hereafter, let us return now to the order of Mr. Hunter's history.

At this period happened the celebrated trial of Donellan, for the murder of Sir Theodosius Boughton. The Oxford Professor of Anatomy decided that the baronet was poisoned. Such also was the opinion of the medical gentlemen who examined the body. The universal attention which so important and remarkable an event excited, naturally induced a recollection of Mr. Hunter's paper on the digestion of the stomach after death. The minute detail of this trial shall be reserved for an Appendix. But it is impossible not to remark, that though the Professor's account was throughout erroneous, and Mr. Hunter's throughout correct, yet the learned judge fancied it easy to comprehend the former, and acknowledged himself incapable of understanding the latter. I well recollect the difficulties which many, even medical men, felt at the same time, and the facility with which some of them solved the whole, by asserting that Mr. Hunter did not understand himself.

Yet nothing could be more simple or more

honest than Mr. Hunter's evidence; simple, inasmuch as it was confined to subjects within his own knowledge; and honest, as no torture of examination, nor a wish to serve the culprit in whose behalf he was subpoenaed, could induce him to offer even a surmise beyond what his actual experiments would authorise. On this occasion, I cannot but mention a remark I once heard from Mr. Shelton, the Coroner for London, who has held so many important offices for so many years, without once committing himself, or without being once suspected of the slightest deviation from his duty through ignorance, neglect, or any other motive. When the name of Mr. Hunter accidentally occurred in a conversation between us, he took the opportunity of inquiring the opinion entertained of him by the Faculty, and concluded the subject by remarking, that he thought him very unhand-somely treated in the trial of Donellan.

In the year 1783, Sir Everard Home informs us, Mr. Hunter was chosen into the Royal Society of Medicine, and Royal Academy of Surgery in Paris.

“ In this year (continues the same writer) the lease of his house in Jermyn Street having expired, and his Collection being now too large to be contained in his dwelling-house, he purchased the lease of a large house on the

east side of Leicester Square, and the whole lot of ground extending to Castle Street, in which there was another house. In the middle space, between the two houses, he erected a building for his Collection. Upon this building he expended above three thousand pounds, and, unfortunately for his family, the lease did not extend beyond twenty-four years.

“ In excuse for so inconsiderate a transaction, it can only be said, that the difficulties he had met with in finding ground in an eligible situation, had harassed his mind, already too much occupied, to such a degree, that he was glad to be relieved from that embarrassment, and made the interest of his family give way to his present accommodation.

“ In the building formed for the Collection, there was a room fifty-two feet long by twenty-eight feet wide, lighted from the top, and having a gallery all round, for containing his preparations. Under this were two apartments; one for his lectures, and the other with no particular destination at first, but afterwards made use of for weekly meetings of his medical friends during the winter. To this building the house in Castle Street was entirely subservient; and the rooms in it were used for the different branches of human and comparative anatomy.

“ During the execution of this extensive plan, I (Sir Everard) returned to England from Jamaica, where, at the close of the war, I had been appointed staff surgeon. Sir Archibald Campbell, the governor, coming home, gave me leave of absence on account of my health, and allowed me to attend him. We arrived in August, 1784, and I was permitted to exchange upon half-pay.

“ I found Mr. Hunter now advanced to a very considerable share of private practice, and a still greater share of the public confidence. His collection had increased with his income. In this he was materially assisted by the friendship of Sir Joseph Banks, who not only allowed him to take any of his own specimens, but procured him every curious animal production in his power, and afterwards divided between him and the British Museum all the specimens of animals he had collected in his voyage round the world. To his friends, the Honourable Mr. Charles Greville and Mr. Walsh, he was also under particular obligations.

“ Drawing materials from such ample sources, standing alone in this branch of science, and high in the public estimation, he had so much attention paid to him, that no new animal was brought to this country which was not shewn to him; many were given to

him, and of those that were for sale, he commonly had the refusal: under these circumstances, his collection made a progress, which would otherwise have been impossible.

“ In April, 1785, the new room was completed, and I devoted the whole of the summer to the object of assisting him in moving his preparations, and arranging them in their proper order. Mr. Bell and Mr. André, a gentleman who had been the greater part of his life engaged in anatomical pursuits, were constantly employed in this business.

“ At this period, Mr. Hunter may be considered at the height of his surgical career; his mind and body were both in their full vigour, his hands were capable of performing whatever was suggested by his mind, and his judgment was matured by former experience; some instances of his extraordinary skill may very properly be mentioned.”—(*Life by Sir Everard Home.*)

A relation follows of several successful and difficult operations; to repeat which seems unnecessary, as they are generally known to those who only know how to appreciate them. I should add too, that Mr. Hunter always held this most showy part of surgery in the lowest estimation. “ To perform an operation, (said he) is to mutilate a patient whom we are unable to cure; it should therefore be

considered as an acknowledgment of the imperfection of our art." How different this from the presumed dexterity of some, who court operations at the hazard of the patient's life, or submit to be executioners, when urged by the patient to attempt what others, of greater prudence or modesty, have declined. These bold undertakings, as they are sometimes called, are not to be confounded with improvements in a necessary operation. Of the latter description was Mr. Hunter's for the aneurism; by which he materially lessened the pain, danger, and future suffering of the patient: and with this improvement may be classed the operations since successfully performed by others, on arteries of such magnitude, and so situated, that till our days, no surgeon ever ventured to approach them with the knife.

"If we consider Mr. Hunter," continues the last mentioned writer, "at this period of his life, it will afford us a strong picture of the turn of his mind, of his desire to acquire knowledge, and his unremitting assiduity in prosecuting whatever was the object of his attention.

"He was engaged in a very extensive private practice; he was Surgeon to Saint George's Hospital; he was giving a very long course of lectures in the winter; he was car-

rying on his inquiries in comparative anatomy; had a school of practical human anatomy in his house; and was always employed in some experiments respecting the animal œconomy.

“ He was always solicitous for some improvement in medical education; and, with the assistance of Dr. Fordyce, instituted a medical society, which he allowed to meet in his lecture rooms, and of which he was chosen one of the patrons. This Society, called the *Lycæum Medicum Londinense*, under his auspices, and those of Dr. Fordyce, has acquired considerable reputation, both from the numbers and merits of its members.” Ready as every one must be to admit the merits of Mr. Hunter, it is the accuracy with which he performed these various duties, and not their multiplicity, which demands our admiration. It shows, that whatever wishes of aggrandisement he might entertain, still the improvement of that profession to which he had devoted himself was always his first concern. We must not, therefore, be surprized if he still remained under pecuniary embarrassments.

These difficulties may, perhaps, be partly imputed to debts gradually contracted, and to that generosity and want of prudence which experience had not altered or improved. But should not his industry, with such fair expectations, and without habits of ex-

travagance, have produced returns more than equal to all these calls ?

It is not my wish by these observations to discourage the young student, still less to advise that he should prefer pelf to science, or, to use the common language, that he should study the world instead of his profession. If many have grown richer than Mr. Hunter, how few have acquired equal respect in the world ? and what can riches furnish more, after satisfying the few wants which even our present age of refinement has produced ? But why indulge this habit of moralizing ? Those who feel as they ought, know all that can be said ; and others are not likely to improve by such an account of Mr. Hunter's progress : and as this subject will necessarily occur hereafter, let us return now to the order of Mr. Hunter's history.

In the year 1786, the death of Mr. Middleton procured him the appointment of Deputy Surgeon General to the Army, the emoluments of which, though not considerable in time of Peace, must have been a very desirable improvement to his income. In the same year he published his grand practical work on a disease generally admitted to have been unknown till the close of the 15th century. In less than sixty years afterwards, nearly a hundred Treatises de Morbo Gallico were col-

lected by Aloysius Luisinus; and within little more than two centuries Astruc enumerated two hundred respectable writers, omitting probably a still greater number who had fallen into oblivion. From the time of Astruc few men of celebrity have engaged in a controversy on which they felt incompetent to offer a decided opinion. Sydenham and Boerhaave indeed thought it their duty not to shrink from such an inquiry, especially as they too often found it consigned to men of little principle and of less knowledge.*

It was no sooner known that Mr. Hunter was engaged on such a subject, than the expectation of the medical world was raised to the highest pitch. What might not be expected when a man of genius, proverbially correct, and with the advantage of so much practical knowledge, undertook to prescribe laws to a disease hitherto supposed to be de-

* In bringing together three such names as Sydenham, Boerhaave, and Hunter, on such an occasion, it is impossible that the learned reader should not be reminded of a passage in that elegant writer to whom we are indebted for all we know of the state of medicine in ancient Rome.—*Difficilis hæc explanatio sit, simul et pudorem, et artis præcepta servantibus. Neque tamen ea res à scribendo detertere me debuit. Primum, ut omnia, quæ salutaria accepi, comprehenderem: dein, quia in vulgus eorum curatio etiam præcipue cognoscenda est, quæ invitisissimus quisque alteri ostendit. Celsus de Obscænarum partium vitiiis.*

fined by none, and hence poetically styled by Astruc a Pandora's box, and by others a Proteiform disease. All waited impatiently for two years after the work had been announced. This delay was occasioned by a determination of the author that it should be as perfect as possible. Satisfied by repeated proofs, and lastly by experiment, that the doctrine was sound, his only anxiety was to render himself perspicuous. For this purpose, and to improve the language, he held a committee of well educated physicians, on certain evenings, every week. The work was printed in his own premises, and he reserved to himself all the profits, professing the necessity of relieving himself from certain difficulties. Without the assistance of the booksellers, one thousand copies were sold within twelve months. But, after all the pains that were taken, the subject was considered more obscure than ever, and the subsequent edition, though in the hands of the trade, lingered for more than twenty years. Two editions were then announced by different hands at the same time. The one in octavo, with commentaries, seems to have succeeded best, as a reprint has already been called for. The doctrine is now better understood. In every controversy, Mr. Hunter's name only is introduced, and probably in a few years the host of former wri-

ters, ancient and modern, will be only known in Catalogues, and their works by the shelves they encumber.

"In the spring of this year,* he had a very severe illness, which confined him to his bed, and rendered him incapable of attending to any kind of business. In this state I [Sir Everard Home] was obliged to take upon myself the charge of his patients, as well as of his other affairs; and these were so extensive, that my residence in his house became absolutely necessary. His recovery was very slow; and his health received so severe a shock, that he was never afterwards entirely free from complaint, or capable of his usual bodily exertions.

"After his recovery from this illness, he was subject to affections of his heart, upon every occasion which agitated his mind, or required any sudden exertion of the body. In this infirm state, he was unable to attend his patients upon sudden calls in the night, or to perform operations without assistance; and for these reasons, I [Sir Everard] continued to live with him till within a year of his death, and then took a house within a few doors; which, in no respect, detached me

* This does not exactly accord with the same author's subsequent history of Mr. Hunter's sufferings, where this illness is dated a year earlier.

from his pursuits, or prevented me taking a part in his private practice."

In the year following, Mr. Hunter received the gold Copleyan medal, as a return for the many valuable papers he had presented to the Royal Society. It is worth remarking, that he had been nearly thirty years known in the metropolis before he was admitted to the honour of a fellowship, and nine years a fellow before he was thought worthy of this distinguished prize.

In July, he was chosen a Member of the American Philosophical Society. "He now," adds Sir Everard Home, "applied to the Governors of Saint George's Hospital, to be allowed, on account of his health, an assistant-surgeon, which they very readily granted, and I was appointed to that office.

"His collection, which had been the great object of his life, both as a pursuit and an amusement, was now brought into a state of arrangement; and gave him, at length, the satisfaction of shewing to the Public a series of anatomical facts formed into a system, by which the œconomy of animal life was illustrated. He shewed it to his friends and acquaintance twice a year; in October to medical gentlemen, and in May to noblemen and gentlemen, who were only in town during the spring.—This custom he continued to his death."

The succeeding page of the same writer contains the following paragraph :

“ In the year 1792, Mr. Hunter found that his course of lectures took up so much of his time, that he was unable to correct his other papers. He therefore gave it up to me. As a previous step, I had given it for two summers before.” We cannot wonder if the class diminished when lectures written by one person were to be pronounced by another, especially by one imperfectly acquainted with some of the pathological doctrines. Sir Everard informs us, that “ Mr. Hunter now began to prepare his Treatise on the Blood, &c. for the press, and intended, as soon as it was in the hands of the public, to give a course of practical lectures in Surgery, for which he had many years been collecting materials ; these were so far advanced, that another winter, had he lived, would have finished them. The materials of these lectures having come into my hands, that they may not be entirely lost to the Public, I mean to avail myself of them, and am preparing my arrangements for that purpose.”—(*Life by Sir Everard Home.*)

Mr. Hunter always professed his lectures to be on practical surgery, with so much of physiology as was necessary to render them perspicuous ; I am therefore at a loss to know the exact import of the above passage. At

the end of his course, he mentioned indeed his intention of hereafter undertaking lectures on general physiology. In the year 1783, considered his plan as very imperfect, and doubted whether he should live to finish it: but I trust, never failed to give all he knew of practical surgery, in a course professedly on that subject. There must therefore, be some typographical error in this passage; of this I am the more convinced, because Sir Everard, as an honest surgeon, would not, for the space of twenty-three years, have deprived mankind of so much practical information.

“ Upon the death of Mr. Adair, in the same year, Mr. Hunter was appointed Inspector General of Hospitals, and Surgeon General of the Army. He was also elected Member of the Royal College of Surgeons in Ireland.

“ In the year 1791, he was so much engaged in the duties of his office, as Surgeon-General to the Army, and his private practice, that he had little time to bestow upon his scientific objects; but his leisure time, small as it was, he wholly devoted to them.

“ In 1792, he was elected an honorary member of the Chirurgo-Physical Society of Edinburgh, and was chosen one of the Vice-Pre-

sidents of the Veterinary College, then first established in London. He published in the Transactions of the Society for the Improvement of Medical and Chirurgical Knowledge, of which Society he was one of the original members* and a zealous promoter, three papers on the following subjects: "Upon the Treatment of inflamed Veins, on Introsusception, and on a Mode of conveying Food into the Stomach, in Cases of Paralysis of the Œsophagus.

" He finished his Observations on the Œconomy of Bees, and presented them to the Royal Society. These Observations were made at Earl's Court, and had engaged his attention for many years; every inquiry into the œconomy of these insects had been attended by almost unsurmountable difficulties; but these proved to him only an incitement, and the contrivances he made use of to bring the different operations of these indefatigable animals to view were almost without end."

These four last paragraphs, the reader will perceive, are copied from Sir Everard Home's Life, which I have endeavoured to follow throughout, as nearly as possible. But it is

* This Society is not the present Medico-Chirurgical Society. The latter was instituted long after Mr. Hunter's death, and is still known by its numerous and respectable communications.

right to remark, that Mr. Hunter succeeded Mr. Adair in 1789, and not in 1792, as in the text. Indeed, the next paragraph points out the error, as he is described engaged in the duties of his office a year before he was chosen to it.

The origin of the Veterinary College was, by the Agricultural Society, at Odiham, in Hampshire. This Society had offered a premium for the best account of the glanders. Mr. Saint Bel, whose real name was Vial, but which he chose for politic reasons to conceal, was the fortunate candidate, and the Society was so well pleased with his essay, that in a little time after, a Veterinary College was projected, over which that gentleman should preside. As soon as the proposal was known to Mr. Hunter, he eagerly joined in it, urging the advantages which might be derived from it, not only to quadrupeds, but to man, by extending our knowledge of physiology. In order to forward the plan, Mr. Hunter, with several other gentlemen, the late Duke of Bedford at their head, deposited £.200 each, on the chance of its being ever returned. The Duke of Northumberland nobly presented £.500, and was made President. It was proposed that Mr. Saint Bel should be examined by Mr. Hunter, and it will easily be conceived by those who are at all acquainted with the

continental pathology of those days, that the examination proved unsatisfactory. Mr. Hunter would gladly have introduced a gentleman with whom he was well acquainted, and whom he knew to be well instructed; but was over-ruled. Yet this did not at all lessen his zeal in promoting the object of the Institution; and as he could not instruct the Professor, he permitted the pupils of the College to attend his own lectures without expence.

We have seen, that for several years Mr. Hunter held the highest rank in the opinion of professional men. He now acquired, by age or seniority, the same rank with the public; being the oldest hospital surgeon known to the town, and I presume the oldest efficient army surgeon, as he had been appointed Surgeon General.

He was now consulted by all those surgeons who were attached to Mr. Pott during that gentleman's life-time. By the rising generation of medical men he was in a manner adored, and quoted with almost as much authority as the schools at one time urged the *ipse dixit* of Aristotle. Thus had he not only risen above the chance of any future embarrassment, but, by common consent, above the shafts of envy, every attempt at detraction only recoiling on those who made it. In this

manner he is described by one who is by no means anxious to dress him to advantage. "From this time (says this Biographer) every thing that John Hunter did was considered by the public in general as being done in the best possible method in which every thing could be done." By his medical rank in the army, where surgery was then considered as every thing, he now enjoyed patronage in addition to wealth and honours. Added to this, he had the highest of all human gratification in the wife of his choice, suited to be his companion, and admirably fitted for, because always accustomed to, the elevated rank which her husband had attained. He had two children at that interesting age when the character is just forming, when every expectation is anticipated, every error, if such occurs, is excused, and often interpreted to advantage. Nor was he insensible of these blessings: he has often told me, that if he had been allowed to bespeak a pair of children, they should have been those with which Providence had favoured him. His town house was beginning to return all the sums it had cost him: it was spacious, and exactly suited for his residence. The ground floor was occupied for professional purposes; and such was the afflux of morning patients, that to find room for them, the drawing-room sometimes was

so suddenly deserted, that the French grammar, and other implements of instruction, were left behind. The building formed for the Museum, in the space between the house of residence and that in Castle Street, has been already described.

The house in Castle Street remained in its original form for practical anatomy, a printing-office, and other purposes not convenient in the residence. In short, nothing was here wanted that a physiologist, in the centre of a large and wealthy metropolis, could possibly desire.

His *propinuum rus* was not less calculated to improve, as well as relieve his leisure hours.

"Earl's Court," says Sir Everard Home, "to Mr. Hunter was a retirement from the fatigues of his profession, but in no respect a retreat from his labours; there, on the contrary, they were carried on with less interruption, and with an unwearied perseverance. From the year 1772 till his death, he made it his custom to sleep there during the autumn months, coming to town only during the hours of business in the forenoon, and returning to dinner.

"It was there he carried on his experiments on digestion, on exfoliation, on the transplanting of teeth into the combs of cocks,

and all his other investigations on the animal œconomy, as well in health as in disease. The common bee was not alone the subject of his observations, but the wasp, hornet, and the less known kinds of bees were also objects of his attention. It was there he made the series of preparations of the external and internal changes of the silk-worm; also a series of the incubation of the egg, with a very valuable set of drawings of the whole series. The growth of vegetables was also a favourite subject of inquiry, and one on which he was always engaged in making experiments.

“ In this retreat, he had collected many kinds of animals and birds, and it was to him a favourite amusement in his walks, to attend to their actions and their habits, and to make them familiar with him. The fiercer animals were those to which he was most partial, and he had several of the bull kind from different parts of the world. Among these was a beautiful small bull he had received from the Queen, with which he used to wrestle in play, and entertain himself with its exertions in its own defence. In one of these contests the bull overpowered him, and got him down; and had not one of the servants accidentally come by, and frightened the animal away, this frolic would probably have cost him his life.”

The refinement of taste and pursuit of that knowledge which contributes most to raise our admiration and gratitude to a first Cause, could not be more strongly attended to than in this delightful retreat. The house within bore marks of having been enlarged, or of the union of rooms, according as the owner had risen in rank and wealth. The pannels of the principal room were enriched with drawings representing the fable of Cupid and Psyche, finished in water colours with true classic chastity, by a near relation of Mrs. Hunter, a gentleman who had studied in the Italian school. Each compartment was bordered with a circular ornament, which concealed the tack nails by which it was attached to the wall, that the whole might be readily removed when the house was deserted for the winter season. The distance from town was such as to secure a professional man from interruptions of less importance, yet within call of more urgent occurrences. Attached to the house was the conservatory, with every facility of detecting the labours of the bee tribe; which was done without interruption, the ladies of the family continuing to watch them during Mr. Hunter's absence. Experiments were carried on to show the analogy between animal and vegetable life and growth. The poultry-yard fur-

nished illustrations of the process of incubation and of inflammation: of mortification from cold and other causes, even to the *Chirurgia curtorum* of Taliacotius. In the pleasure ground, the ox and buffalo exhibited a variety of crossings, whilst the kennel and sties furnished papers well deserving to be enrolled among the Transactions in which they are recorded.

ACCOUNT OF MR. HUNTER'S CONNECTION AND
DIFFERENCE WITH HIS BROTHER.

I HAVE now traced Mr. Hunter's progress through the various scenes of life, till he arrived at the highest honours he ever attained. His success was tardy indeed, as with most professional men, but uninterrupted, and in him attended with a degree of domestic felicity enviable even without his other advantages. I might conclude with a history of his bodily complaints, and of the manner in which they proved fatal to him; but before I enter on these, it seems proper, for the full development of his character, to trace the progress of another event.

It has been remarked, that in the early part of Mr. Hunter's career, he was assisted by his brother, the justly celebrated Dr. W. Hunter. To this assistance he owed his first introduction to London, to the army, to the title of Surgeon Extraordinary to the King, to the hospital, and probably to some private practice. After these helps, with so much genius and industry, he could not fail of succeeding; and without them, he might have remained idle in Scotland, or have procured only a precarious subsistence in London. That Dr. Hunter was fully impressed with a sense

of his brother's worth is evident in every instance in which he had an opportunity of expressing it, during the early part of their intercourse. Even afterwards, Sir Everard informs us, " His [John's] labours were so useful as to keep the brothers together for several years.*"

It may be thought, that the above account, or rather hint, was necessary as a part of Mr. Hunter's History, and that it was delicate to say no more. It may be so, but to me it appears necessary to dwell longer on a subject which is known imperfectly, and consequently variously represented by every medical man, and which makes an important part of Mr. Hunter's History, by delineating his disposition and character. I know we are perpetually reminded of that tame proverb, "*De mortuis nil nisi bonum*;" the meaning of which, I conceive to be, that we should be somewhat sceptical in forming our opinion concerning characters of whom we have no records but from their eulogists. If more than this is meant, we must owe the adage to monastic craft, or to the worst period of the Roman History, when their worst Emperors were enrolled amongst their Gods. Nothing of this kind can be traced in their better days, nor in their

* Life of Hunter, p. 17.

predecessors, the Greeks, whose writings we aspire to imitate; nor in those Archives to which *they* paid respect, and by which it appears, that a judicial inquiry was made concerning the character of the deceased. If characters are drawn for imitation, why should we draw what cannot be imitated? If to warn us against their failings, why should those failings be concealed? In either case, whilst we profess to inculcate the moral principle, let us never be unmindful of truth. Is it not among the arguments in favour of Holy Writ, that the errors of the best men are not concealed? And even in poetry, where fiction is permitted, do we find the prince of that art draw his heroes without their failings?

Dr. William Hunter was one of those few fortunate men who are placed early in life exactly in the situation for which nature and education design them. He had an innate love of order, which evinced itself in every part of his conduct throughout life: a solid understanding, a correct eye, with a perseverance which could only have been supported by a fondness for his occupation, his happy manner of conducting it, and the success with which it was attended. His classical acquirements were superior to most men's who are not professed scholars. These, with his native endowments, gave him a facility of ex-

pression, and a most happy choice of words, joined to a talent at demonstration which never can be exceeded. Whether, from an originally correct ear, a refined taste, or the early company he fell into, his dialect had all the polish of the southern metropolis, with enough of the northern recitative to preserve the close of his sentences from too abrupt a cadence. His person, though small, was graceful; his cast of features regular and interesting; his voice musical; his manners attentive and flattering. In short, Dr. Hunter was a polite scholar, an accomplished gentleman, a complete anatomist, and probably the most perfect demonstrator, as well as lecturer, the world had ever seen.

It cannot be supposed that so many advantages existed without honest intentions. From such only could arise that love of order with the uniform politeness which never forsook Dr. Hunter. For the latter, it may be said, he was indebted to his early association among his superiors in rank; but he never could have retained so long and uninterrupted an intercourse with them, unless such manners had been natural to him: for no one can pass a life in perpetual masquerade. What then can be objected to such a character? Only, we may answer, that he was a man, and had the infirmities of human nature. The fatigues

of a laborious profession, in addition to the daily task of teaching, can only be supported by the necessity of procuring a maintenance, or the gratification arising from such employments. From the first, Dr. Hunter was soon relieved. The latter must depend on the manner in which we are received by others. But where is the man who can be flattered all day long without expecting the same incense at home, where he is often niggard in repaying the coin by which he purchases it abroad? The mind is not like the palate, to be satiated by luxuries. At first we are anxious for applause, as the only means by which we can judge of our acquirements; having tasted it, the savour is so grateful, that if we do not go in quest of it, the privation at least becomes painful. But, of all other men, teachers are the most obnoxious to this failing, because they are perpetually conversing with those who can only be silent when they doubt, and the best of whom are the most anxious for information, and the most grateful when they receive it.

When John first entered the dissecting-room, every thing was new, and his brother had the delightful task of meeting with a scholar exactly to his mind; diligent, orderly, inquisitive, and ready in comprehending all the instruction he received. It could not but add

to his gratification, that such a disciple was his near relation; and we may easily conceive how uninterrupted the intercourse between the two may have continued, as long as the eldest considered every discovery made in his dissecting-room as his own property. With such an impression, Dr. Hunter might be at his ease, even if he felt the superiority of his younger brother. But they were too nearly of an age for these habits to continue; and as soon as the scholar ventured to offer a well-founded opinion, in contradiction to, or even in anticipation of, his master, it requires but little knowledge of human weakness to see how it would be received. The stripling, at first astonished at these rebuffs, and probably mistaking their object, redoubles his diligence, to confirm or explain what is already too well understood, and is thus perpetually widening a breach in his attempts to restore it.

It appears probable, from the papers published by each, that the younger brother might, at an early period, have been backward in that implicit assent which his master was accustomed to receive from those about him. It was in the latter end of the year 1752, six years after John's arrival, that Dr. Hunter gave the examination of the aneurismal Case, published in the first volume of "Medical Communications and Inquiries." In

this it is impossible not to admire the minuteness and accuracy with which every thing is traced, or the learned references with which the whole is enriched: the delicate remark concerning the power of the cartilages to preserve themselves, and even the nice distinction between the mere absorption of part of the bone and its destruction by caries or ulceration, are highly creditable for the time in which they were made. But it is easy to conceive, that though John might be silent, he could not have given his assent to "the blood dissolving and wasting away the substance of the bone," illustrated by the excavations "produced on stones by a dropping or a stream of water." However this may be, there are proofs that, only two years after these events, Mr. Hunter was beginning to feel less satisfied that the result of his own labours should be delivered by his master, without, as he conceived, sufficient acknowledgment of the source from which they were derived. In his "Animal Economy," published thirty years afterwards, he informs us of discoveries he made in the organ of smelling, "the preparation of which was repeatedly shown by Dr. Hunter in his Lectures, who, at the same time, pointed out that alteration in the mode of reasoning upon those nerves which would naturally arise from this-

discovery." This remark is less pointed than another, which appears in the same collection, on the structure of the placenta; and it is not less worthy of notice, that the same event should have separated two other medical teachers, a master and his disciple * also.

In May, 1754, Mr. Hunter informs us, that Dr. M'Kenzie had been particularly successful in injecting the veins and arteries of a placenta.† The appearance being new, he proceeded no further till he procured Mr. Hunter's assistance in the examination. "After having dissected and made the whole into preparations, (says Mr. Hunter) I returned home in the evening, and communicated what I had discovered to my brother, Dr. Hunter, who at first treated it and me with good-humoured railery; but, on going with me to Dr. M'Kenzie's, he was soon convinced of the fact. Some of the parts were given to him, which he afterwards shewed at his lectures, and probably they still remain in his collec-

* Dr. Douglas and Dr. M'Kenzie.

† The following is Mr. Hunter's note appended to this passage. "Dr. M'Kenzie being then an assistant to the late Dr. Smellie, the procuring and dissecting this woman, without Dr. Smellie's knowledge, was the cause of a separation between them: for the leading steps to such a discovery could not be kept a secret. The winter following, Dr. M'Kenzie began to teach midwifery in the Borough of Southwark." This paper was not published till after Dr. Hunter's death.

tion." And in the following page he leaves "the reader to examine what has been said on this subject by others, especially by Dr. Hunter, in that very accurate and elaborate work which he has published on the gravid uterus, in which he has minutely described and accurately delineated the parts, without mentioning the mode of discovery." These are not the only passages in which similar remarks occur.

It is probable John might have been present when these lectures were delivered, and also that he might have seen the manuscript describing the parts; for it is well known that, from a laudable anxiety to render his description of the gravid uterus complete, Dr. Hunter had devoted to it no inconsiderable part of his leisure for the last thirty years. Every thing, however, passed peaceably for the present; and in the following year, 1755, Mr. Hunter was admitted Joint Lecturer for four years more. In the theatre he never could have been popular, but must have been courted by the most industrious students in the dissecting-room.

Before the commencement of the October Course, in 1760, John was advised to go abroad. Though it was necessary to supply his place in the theatre and dissecting-room, yet it is certain that Dr. Hunter took every

opportunity of acknowledging to his audience the obligations he owed to his absent brother. My friend, Dr. Cogan, who, happily for all that share his acquaintance, lives to relate transactions of more than half a century past,* informs me, that, in the winter of 1762-3, Dr. Hunter would frequently introduce in his lectures—"In this I am only my brother's interpreter—" I am simply the demonstrator of this discovery; it was my brother's." Dr. Cogan adds, "the frequency of such expressions naturally inspired all his pupils with admiration of Mr. Hunter's skill in anatomical researches, and of the Doctor's ingenuous conduct."

On Mr. Hunter's return to England, after three years' absence, we have seen that he found his department occupied; but this did

* Since the first Edition of this work was published, Dr. Cogan, at that time in high health, has paid the great debt of Nature. I mention this to caution every Biographer, with how much diligence he should collect anecdotes of the defunct. It is remarkable that I have not been able to meet with a single person who heard Mr. Hunter Lecture in his brother's theatre, nor with many who can recollect that Dr. Hunter ever referred to him in his lectures. It is now approaching thirty years since Mr. Hunter delivered his own course, and twenty-five since his decease. Delightful as it is to perceive the memory of such a man daily rising from his ashes, it seems to impose a higher duty on those who have the opportunity, to collect every authentic tradition concerning him.

not lessen his ardour in the pursuit of knowledge ; and so different were the talents of the brothers, and so fair the intentions of each, that it was easy to preserve the continuance of good offices when they were no longer in almost continual contact. Accordingly, six years after, by his brother's interest, John was elected Surgeon to St. George's.

It does not appear that Mr. Hunter had offered any paper to the Royal Society till five years after his admission, when the President forced from him the only imperfect experiments that have appeared from his hands. From that time (1772) to 1776, several of his papers were published in the *Philosophical Transactions* ; after which, till the year 1782, he seems to have been so much occupied in preparing for the *Gulstonian Lectures*, that, excepting the dissection of the free martin, nothing is to be met with under his name in those valuable memoirs. In the year 1780, he was unfortunately induced to send his account of the structure of the placenta to the Royal Society. This was twenty-five years after his discovery, and five after Dr. Hunter had published a most accurate description of the same part in the truly splendid and valuable work, "*The Anatomy of the Gravid Uterus.*" What could be John's motive for sending this paper, or the Society's

for permitting it to be read? The latter, as occasionally must happen, might have wanted a paper for the night, or the former might have fancied it some time since his name had made any figure in a collection carefully examined and often referred to by all the literati in the habitable globe. It appears too, by the extracts above quoted, that he must have felt, with too much sensibility, the invasion of his intellectual property, whenever the parts were described in the theatre; and that though, in the preface to the "Gravid Uterus," Dr. Hunter had most pointedly expressed his obligations to his brother, Mr. John Hunter ("whose accuracy in anatomical researches is so well known, that to omit this opportunity of thanking him would be in some measure to disregard the future reputation of the work itself"); yet even this was not enough. Accuracy is mechanical, but discovery marks genius; the supreme pride of a being whose most splendid attainments have not yet taught him the use of many of the constituent parts of his own body!

Of the further progress of this business, we know no more than that, "at the next meeting of the Society, a letter was read, in which Dr. Hunter put in his claim to the discovery in question. This letter was followed by a reply from John; and here the dispute

ended.** An impartial review of the above transaction should not impress us with sentiments particularly unfavourable to either party. We should turn back to the period when John was totally uninformed, whilst his brother's character stood the highest in anatomy; we should recollect there was a difference of ten years in their ages, which at an early period of life, and under such particular circumstances, almost implies patronage and a corresponding respect. This patronage had continued, in a certain degree, ever since; yet, probably, whilst the elder was in full recollection of past events, the younger could not but feel his own growing importance. He might even expect still greater assistance from a near relation who had encouraged his early prospects, and who, engaged in a very different branch of the profession, could fear nothing from a brother's success.

In this manner we find differences amongst those whose connections are the nearest, and whose pursuits are not only the most similar, but often the most meritorious. Is it that the tie which draws us more closely together is conceived strong enough without those nicer

* These papers, though not published by the Society, are preserved in their archives. See Dr. S. F. Simmons's *Life of Dr. Hunter*, page 36.

attentions which we find necessary for preserving more distant connections? Does each party expect too much of the other? or, do both presume too much on the conscious rectitude of their intentions? How else can we explain the quarrels of a Brutus and a Cassius, when each fancied his only wish was to preserve the stupendous fabric of Roman liberty? Most of all, how else shall we explain the "sharp contention" which separated Paul from his fellow Apostle, both engaged in preaching the Religion of Love, and at a time when their mutual wish was to visit their brethren in every city where they had preached?*

These are among the weaknesses of human nature, and it is happy where their effects are only transient. Such would probably have been the case with John. Having brought his claim before an adequate tribunal, where he was heard impartially, he might have rested satisfied. But such was not the temper of William. With the mildest manners, and I firmly believe with the most upright, and for the most part, the kindest intentions, he seems, unfortunately, to have considered "warm controversy, if not necessary, at least venial, for those who wish to become considerable in anatomy, or in other branches of natural know-

* Acts, Chap. xv.

ledge."* It does, indeed, appear as if the above was a favourite axiom with one who, in other respects, was certainly not deficient in the finer feelings of our nature. The succeeding connection with Mr. Hewson was of short continuance, and seems to have been maintained with more difficulty in proportion as that gentleman became more popular. With him too, though not a relation, it appears as if Dr. Hunter assumed all that influence and power which, like many others, he attached to patronage. One of the sources of disagreement with his brother, and afterwards with Mr. Hewson, was on the score of their marriage: a subject, his interference in which, to say the least, would be reckoned absurd, but in both, the present instance was unfeeling, if not cruel. Mr. Cruikshanks, originally destined for the clergy, and first introduced to Dr. Hunter as his librarian, became an assistant in the anatomical school by his perseverance; and probably, never ventured to differ from his patron on subjects to the study of which he had been only recently introduced. Yet, even with him, it often required the mediation of mutual friends to preserve an intercourse extremely useful to the one, and almost necessary to the other.

* These are his own words, copied from the Supplement to the First Part of the Medical Commentaries, page 2.

Whatever may have been the feelings of Dr. Hunter, after this open rupture with his brother, it is certain, that John felt most poignantly the entire separation which followed for the three remaining years of his brother's mortal existence. About the middle of March (1783) Dr. Hunter's Biographer informs us,* that after a previous illness, he determined, in opposition to the anxious wishes of all his friends, to appear again in his theatre, and was so exhausted as to faint before the conclusion of his lecture. As he lived ten days longer, the situation of such a character became an object of general conversation, and almost of equal anxiety. Of the latter, no one partook more feelingly than his brother. In the warmth of his heart, he requested, that he might at least be introduced to the sick bed of his near relation, his patron, his instructor, and the head of his family. This request was complied with, and the relation, the quondam pupil and protégé, had the high gratification of administering his professional services in the last moments of life.

Report says, that the Doctor, on his death-bed, expressed a wish to explain, in the theatre, how pleasant it is to die. Dr. Simmons informs us, that, turning to his friend, Dr.

* See Dr. S. F. Simmons.

Combe, his words were, "If I had strength to hold a pen, I would write how easy and pleasant a thing it is to die." Probably both accounts might be true. But either expression, from one surrounded by his friends, with his class and his literary talents in full view, marks a degree of Stoicism of which few men in health can form a just conception. They were said to be his last words.

It has been sometimes suggested that as Dr. Hunter retained his faculties to the last, a nuncupative memorial might have been recollected for his brother, of whom no mention was made in his will. The man who never valued money during his life, was not likely to think much of it at such a moment. He knew also, that his brother had now overcome the first difficulties of a professional career; after which, success is certain. But he could not be ignorant of his brother's uncertain life, or of the little provision he had made for those who might survive him. Happily, this was attended to by the Doctor's residuary legatee, who, as we shall see, gave up the estate of Long Calderwood to one who bore the family name, and who, according to the common allotment of landed property, would become possessed of it.

Notwithstanding the apparent coldness of this dying philosopher, John was no better

prepared for the parting scene. This was remarked by us all as he entered the lecture room, and most when a particular circumstance obliged him to mention his brother's death.

The spring was advancing, and his course was finished. On this occasion, I shall transcribe from my notes, taken at the time, the conclusion of his peroration, which was given *extempore*.

“ Having finished his course, Mr. Hunter affectionately addressed his pupils in the usual form, expressing his gratitude for the tribute they had paid his abilities in attending his course during the winter, assuring them that he should ever be happy to see or hear from them, and to assist them with his advice, with a fee if the patient's circumstances should admit; if not, as readily without, begging that the latter might never prevent their applying to him. It was, at present, his intention to continue lecturing in the same way as he had hitherto done. Some persons had suggested to him that he should lecture on anatomy, but he did not scruple to say that he thought himself superior to describing the origin and insertion of muscles, and the course of blood-vessels. He assumed the privilege of teaching the action of parts whose situation common application might easily demonstrate. Mere human anatomy was too small a scale

for him to move in; he had never been contented with it, and, he trusted, had done as much in comparative anatomy, as it is called, as any one before him. Should his life and health permit, it was his wish, at some period, to undertake physiological lectures, not on the human alone, but on animals at large. He had neither sufficiently arranged his ideas, nor made up his opinion on some things to begin for years. Some other remarks followed, on his prospects, and on the new house he was preparing to enter, which prevented his exhibiting his museum, as was his custom at the close of each course.

“ Here Mr. Hunter seemed to finish, yet to have more to say; at length, endeavouring to appear as if he had just recollected something, he began—“ Ho! Gentlemen, one thing more:—I need not remind you of ——— You all know the loss anatomy has sustained!” He was obliged to pause, and turn his face from his hearers. At length, recovering himself, he proceeded: “ Though it would be unfair to compare Mr. Cruikshank with Dr. Hunter, yet much allowance should be made for Mr. Cruikshank, in being obliged, at present, to give lectures for which he could have made no preparation, as he could not expect that he should have occasion to give them; I have, therefore, only to beg you will make this al-

lowance for him, and to acquaint you that the lectures will be continued as usual."

This, and a few words more, were not spoken without great emotion, nor with dry eyes. The scene was so truly pathetic, that a general sympathy pervaded the whole class; and every one, though all had been preparing to leave the place, stood or sat motionless and silent for some minutes.

Such were the feelings of one who had been estranged from his only brother for the last three years of his life, at a period when both had exceeded the age at which the poet describes the human character.—*Quærit—amicitiâs*, and approaching that in which the philosopher deems friendship *optima et pulcherrima vitæ suppellex*. It will naturally be asked, whom are we to blame for this privation of this greatest earthly blessing? And here, most prudent men will condemn my friend, who, from the softness of his temper, became, to all appearance, the only sufferer! Was it not unnecessary, such may say, to use no worse a term, for him who could not but know his brother's character, to bring such a paper before the Royal Society, and at such a time? A very little reflexion, too, would have taught him how accurately the world judges on these occasions; or if they err, how much more frequently they attribute most to those who

claim the least. What could John have lost, had he permitted his brother to enjoy the little satisfaction he claimed in the discovery of whatever related to a work which had occupied his thoughts for thirty years. We have seen that the Royal Society of London distinguished the younger brother first, and that Baron Haller, at a distant part of the continent, gave him full credit for detecting the *iter testium*. The whole history of that controversy might have taught him how little he had to fear, that his property in any discovery would even be reserved to the forlorn hope of posthumous justice. Pecuniary emoluments may be more tardy; but John seems never to have studied them, and least of all, when he quarrelled with his nearest relation, at that time caressed by all the nobility and wealth of the country.

Such may be the language of those who estimate no other property than what is easily transferred, usually to the most diligent or most cautious, and sometimes to those who have no claim to either of these characters. Had Mr. Hunter been unfairly deprived of money or land, would such judges have condemned him for reclaiming them. Yet the claims of genius, of discovery, if any thing can be important to mortality, are proportionally the greatest, as such attainments are

the most rare. I have been told by a gentleman who attended Dr. Hunter's Lectures, in the year 1765, that a specimen of injected placenta was exhibited with peculiar caution, and almost with triumphant exultation. Whilst other preparations were handed round through the forms, this was reserved by itself, to be viewed in succession by each student, as he retired at the conclusion of the lecture. Inclosed in glass, though a dry preparation, and placed on a pedestal, it was watched with caution by the Professor, who, more than once at each exhibition, desired the class to dispatch *him*, if any injury should be done to what he never expected to replace. Often had he made the attempt, but never with the same success.

Though Mr. Hunter could not have been present at the lectures for several years before, yet it is probable, he heard the recital of these words from students who attended them both. The successful injection, we may presume, consisted of *those parts which were given to Dr. Hunter*. It is true, John does not claim the merit of the injection, but of demonstrating from it what had before been in vain sought for, and what even the successful operator had been unable to detect. It is worth remarking, that under those difficulties, instead of asking the assistance of Dr. Smellie,

his master, or of Dr. Hunter, the most distinguished anatomist in London, he should immediately send for his young friend, who at that time had not been much more than five years in London; yet, by the accuracy of his examination, he at once discovered the communication of blood-vessels between the mother and the placenta. This was the discovery Mr. Hunter wished to claim as his own property; and that it was such can hardly be disputed, as Dr. M'Kenzie never put in his claim to more than Mr. Hunter allotted to him.

This history may, by some, be thought unimportant, and may be said to be a matter of daily occurrence. It is on that account, I conceive, deserving all the minute attention with which it is detailed. It may teach the best intentioned, that it is not enough; they claim only their own. Thankful should they be, when they fancy themselves among the favoured few capable of making discoveries in nature; and if, with such gifts, they can feel all the delicacies of friendship, is it not their duty to evince their gratitude for such blessings, by a corresponding demeanour to others less enlightened and less susceptible of such feelings? It should, however, be remarked, that the paper on the placenta was not presented to the Royal Society till after Mr. Hunter had suffered those two severe

attacks; by one of which, the proper fountains were unequal to the regular transmission of the vital fluid; by the other, the organ which forms the medium of every mental impression, had suffered a change, however slight in its texture. Before we enlarge further on such a character, it becomes us, therefore, to trace the progress of those diseases by which the world was prematurely deprived of his invaluable labours.

MR. HUNTER'S COMPLAINTS AND DEATH.

ON this occasion, the authority of Sir Everard Home should seem so satisfactory, that in the First Edition I had no other intention than to copy his account. There were, however, some passages which contradicted the former part of his history, and others which are in part contradicted by Mr. Hunter himself. It is true, none of these would be generally considered as very important: but truth is always important; and as the account is said "to form one of the most complete histories of a disease" by no means unfrequent, and generally found incurable, no one can question the necessity of as much accuracy as the subject will admit. We are informed, indeed, that each symptom was either noted by the sufferer, or dictated to the relator: but intermixed with this account, we meet with reflections evidently not Mr. Hunter's, and such as make it difficult exactly to ascertain how much we are to ascribe to each. Yet wherever it can be done with propriety, I have transcribed Sir Everard's account, and in his own words, for reasons which will appear in a subsequent note.

"The symptoms of Mr. Hunter's complaint, for the last twenty years of his life,

(says Sir Everard) may be considered as those of the angina pectoris; and form one of the most complete histories of that disease upon record. I have chosen to give this account a place by itself, distinct from the general history of his life, of which it forms an important part, more especially when prefixed to a medical work.

“ Each symptom was described at the time it occurred, and either noted by himself, or dictated to me, when Mr. Hunter was too ill to write; they will therefore be found more accurately detailed than in ordinary cases.*

“ Mr. Hunter was a very healthy man for the first forty years of his life; and, if we except an inflammation in his lungs in the year 1759, occasioned most probably by his attention to anatomical pursuits, he had no complaint of any consequence during that period. In the spring of 1769, in his forty-first year, he had a regular fit of the gout, which returned the three following springs, but not in the fourth; and in the spring of 1773, hav-

* “ As the statement of the following case is made up from detached notes which were not written with a view to publication, it will appear, in point of language, extremely deficient; it was, however, thought better to leave it in its present form, lest, by altering the language, the effect of some of the expressions might be diminished, or misunderstood; it was also believed, that an account, however crude, coming directly from the author, would be more acceptable to the public, than one a little more finished from any other hand.”

ing met with something which very forcibly affected his mind, he was attacked, at ten o'clock in the forenoon, with a pain in the stomach, about the pylorus: it was the sensation peculiar to those parts, and became so violent, that he tried change of position to procure ease; he sat down, then walked, laid himself down on the carpet, then upon chairs, but could find no relief. He took a spoonful of tincture of rhubarb with thirty drops of laudanum, without the smallest benefit. While he was walking about the room, he cast his eyes on the looking-glass, and observed his countenance to be pale, his lips white, giving the appearance of a dead man: this alarmed him, and led him to feel for his pulse; but he found none in either arm. He now thought his complaint serious. Several physicians of his acquaintance were then sent for: Dr. William Hunter, Sir George Baker, Dr. Huck Saunders, and Sir William Fordyce, all came, but could find no pulse; the pain still continued, and he found himself at times not breathing. Being afraid of death soon taking place if he did not breathe, he produced the voluntary act of breathing, by working his lungs by the power of the will; the sensitive principle, with all its effects on the machine, not being in the least affected by the complaint. In this state he continued for three

quarters of an hour, in which time frequent attempts were made to feel the pulse; but in vain; however, at last, the pain lessened, and the pulse returned, although at first but faintly, and the involuntary breathing began to take place. While in this state, he took Madeira, brandy, ginger, &c. but did not believe them of any service, as the return of health was very gradual; in two hours he was perfectly recovered.

“ In this attack there was a suspension of the most material involuntary actions; even involuntary breathing was stopped, while sensation with its consequences, as thinking and acting with the will, were perfect, and all the voluntary actions were as strong as before.

“ Quere. What would have been the consequence of his not having breathed by means of the voluntary muscles? It struck him at the time that he would have died; but we cannot suppose that would have been the consequence, as breathing most probably is only necessary for the blood while circulating; and as the circulation was stopped, no good could have arisen from breathing.

“ From this case it appears, that the involuntary actions of the body are not a regular series of actions depending absolutely on one another, but each part can and often does act independently, or leaves off acting while

other actions are going on ; but although there is not an absolute dependance, there is a necessary connexion among them, without which their actions cannot continue. The stomach was probably the seat, or origin of this cessation of action ; as we know that affections of the stomach have the greatest influence on every part of the body, and that affections of every part have the power of influencing the stomach."

The above account does not place Mr. Hunter in a very favourable light. The fear of death might, if it existed, have been described in his own words. In his Treatise on the Blood, describing his own case in the third person, he says, " As he was perfectly sensible at the time, and could perform every voluntary action, he observed that he was not breathing, which astonished him, and *at first conceiving* he must die if he did not breathe, he performed the act of breathing voluntarily."*

The reflections on the case, as given by Sir Everard Home, are unintelligible ; or, if they mean any thing, are directly the reverse of those suggested by the sufferer. In the passage above alluded to, Mr. Hunter, instead of saying, " from this case it appears, that

* Treatise on the Blood, &c. p. 150.

the involuntary actions of the body are not a regular series of actions depending absolutely on each other," seems to intimate that they are. " This shows (says he) that breathing [meaning involuntary breathing, as he used to say in his lectures, and afterwards explains in the passage to which I am now alluding] depends on the actions of the heart:" consequently that, in this instance, there *is* a regular series of actions, the one depending on the other.

Mr. Hunter is also too cautious to assert, that the " stomach was the seat or origin of this cessation of action." He remarks, indeed, that the pain was in the situation of the pylorus, and that the pains were such as indicated the seat to be in the nerves of the stomach and its connexions. In his lectures he used to describe the stomach as an universal sympathiser, and particularly with vital parts. Had he been at that time more accustomed to medicine than surgery, he would have known that inflammation in the stomach could not exist without sickness, and that probably the first symptom of relief would have been vomiting what he had taken during the paroxysm. That the disease was in the heart can now admit of no doubt: the cessation of the pulse is what might be expected from violent inflammation, as will be hereafter

explained; but the strongest proof is, that from this period, twenty years before Mr. Hunter's death, Sir Everard describes him with the symptoms of angina pectoris, probably in a milder form, till the return of subsequent inflammation in the sanguiferous system, which will be mentioned in its order.

The next illness of importance was about three years after, and appears to have been inflammation in the arteries of the brain, during which certain changes took place in those parts, which were found on examination after death.

“ Mr. Hunter (says Sir Everard) never had any return of these affections of the stomach, though frequently troubled with slight complaints both in the stomach and bowels, which were readily removed by small doses of rhubarb. In other respects, he enjoyed his health till the year 1776. Towards the end of the spring he was seized with a very severe and dangerous illness, in consequence of anxiety of mind from being obliged to pay a large sum of money for a friend, for whom he had been security, and which his circumstances made extremely inconvenient.

“ At two o'clock in the forenoon he eat some cold chicken and ham, and drank a little weak punch; immediately after this he went eight miles in a post-chaise. While he

was on the journey, he had the feel of having drank too much, but passed the remainder of the day tolerably well : at twelve o'clock at night his stomach was a little disordered, for which he took some caraways, and went to bed ; he had no sooner laid down than he felt as if suspended in the air, and soon after the room appeared to go round ; the quickness of this motion seemed to increase, and at last was very rapid ; it continued for some time, then became slower and slower till the whole was at rest ; this was succeeded by vomiting, which was encouraged, and gave him a good night's rest. Next day he was tolerably well, but fatigued. The morning after, thinking himself quite recovered, he went out before breakfast, drank some tea, and eat some bread and butter, which he was not accustomed to do. At eleven o'clock, he felt his stomach much in the same state as before ; in about half an hour, the sensation of the room appearing to turn, recommenced, and continued for some time, but not with such violence as in the last attack : he became sick and vomited ; the sensation of himself and every thing else going round went off, but that of being suspended in the air continued, with a giddiness. He now could hardly move his head from a horizontal position, and about two o'clock was brought home in his carriage,

the motion of which was very disagreeable, giving the sensation of going down, or sinking.

“ After he went to bed, the giddiness and the idea of being suspended in the air increased, and the least motion of the head upon the pillow appeared to be so great, that he hardly durst attempt it; if he but moved his head half round, it appeared to be moving to some distance with great velocity. The idea he had of his own size was that of being only two feet long; and when he drew up his foot, or pushed it down, it appeared to him to be moving a vast way. His sensations became extremely acute or heightened; he could not bear the light, so that although the window-blinds were shut, a curtain and blanket were obliged to be hung up against it, the fire to have a skreen before it, and the bed-curtains to be drawn; he kept his eye-lids closed, yet if a lighted candle came across the room, he could not bear it. His hearing was also painfully acute, but not so much increased as his sight; the smell and taste were also *acuté*, every thing he put into his mouth being much higher flavoured than common, by which means he relished what he eat. His appetite at first was very indifferent, but soon became good. His pulse was generally about sixty, and weak, and a small degree of heat on the skin,

especially on the hands and feet. He remained in this state for about ten days, and was obliged to be fed as he lay: by this time he was rather better; that is, he could move his head more freely.

“ When he was first attacked, the pulse was full, and eight ounces of blood were taken away; but this did not appear to be of service. The day following he was cupped between the shoulders, and had a large blister applied upon the part: he took an emetic, and several times purging medicines, and bathed his feet in warm water; but nothing appeared to be of the least use. The purging and vomiting distressed him greatly, for both the stomach and intestines were so irritable, that less than half the usual quantity had the desired effect. He took some James’s powder, and drank some white-wine whey on account of the heat in the skin, especially in the feet and hands, which took it off, and gave him for the first time a comfortable feel. At the end of ten days all his ideas of his present state became more natural, the strange deception concerning his own size was in part corrected, and the idea of suspension in the air became less; but for some time after, the fire appeared of a deep purple red. When he got so well as to be able to stand without being giddy, he was unable to walk without

support, for his own feelings did not give him information respecting his centre of gravity, so that he was unable to balance his body, and prevent himself from falling."

The highly sensitive state of all the organs during the acute symptoms, and the consequences of a slow convalescence, will be readily accounted for, when the appearances in the brain after death are detailed.

From this time to the year 1785, a period of nearly nine years, we are told Mr. Hunter had no particular indisposition, with the exception of course, as before, of the symptoms of angina pectoris. "Certainly (says Sir Everard) he did not enjoy perfect health; for in this year he appeared much altered in his looks, and gave the idea of being much older than could be accounted for from the number of years which had elapsed."

It should, however, be recollected, that Mr. Hunter had now reached his fifty-seventh year; that twelve years had elapsed since that severe complaint, after which he had never been free from angina pectoris; that for the last two years he had been occupied in repairs, which drained all his earnings, so as probably to keep him continually in a fretful state; besides his application to science, which, however agreeable, must gradually produce an effect on the cast of feature.

That the *res angustæ domi* had a considerable effect on his manners is very certain; for in the year following, being appointed to an office in the army medical department, which mended his circumstances, and having been flattered by the success of his Quarto publication, these events seemed to produce their effects by an increased cheerfulness, as Mr. Bell remarked to me, that it did in his intercourse with those about him; but his features were now too much fixed to admit of any permanent alteration. His health was, however, so much improved, that we cannot wonder if, as the spring advanced, he was assailed by disease in a more violent form. The description given by Sir Everard is extremely confused, for want of a due distinction between the acute and chronic symptoms. I shall first, therefore, transcribe it in the words of the author, and afterwards endeavour to arrange it with as much method as possible.

“ About the beginning of April, 1785 (Sir Everard Home informs us), he was attacked with a spasmodic complaint, which at first was slight, but became afterwards very violent, and terminated in a fit of the gout in the ball of the great toe; this, like his other attacks, was brought on by anxiety of mind. The first symptom was a sensation of the muscles of the nose being in action; but whether

they really were, or not, he was never able to determine. This sensation returned at intervals for about a fortnight, attended with an unpleasant sensation in the left side of the face, lower jaw, and throat, which seemed to extend into the head on that side, and down the left arm, as low as the ball of the thumb, where it terminated all at once: these sensations were not constant, but returned at irregular times; they became soon more violent, attacking the head, face, and both sides of the lower jaw, giving the idea that the face was swelled, particularly the cheeks, and sometimes slightly affected the right arm. After they had continued for a fortnight, they extended to the sternum, producing the same disagreeable sensations there, and giving the feel of the sternum being drawn backwards toward the spine, as well as that of oppression in breathing, although the action of breathing was attended with no real difficulty: at these times the heart seemed to miss a stroke; and upon feeling the pulse, the artery was very much contracted, often hardly to be felt, and every now and then the pulse was entirely stopt. He was afterwards attacked with a pain in the back, about that part where the œsophagus passes through the diaphragm, the sensation being that of something scalding hot passing down the œsophagus. He was

next seized with a pain in the région of the heart itself; and last of all, with a sensation in the left side, nearly in the seat of the great end of the stomach, attended with considerable eructations of wind from that viscus: these seemed to be rather spasmodic than a simple discharge of wind, a kind of mixture of hiccough and eructation, which last symptoms did not accompany the former, but came on by themselves. In every attack there was a raw sore feel, as if the fauces were excoriated. All these succeeding symptoms (those in the stomach and nose only excepted) were in addition to the first, for every attack began with the first symptoms. The complaint appeared to be in the vascular system, for the larger arteries were sensibly contracted, and sore to the touch, as far as they could be touched, principally in the left arm; the urine at those times was in general very pale.

“ These symptoms increased in violence at every return, and the attack which was the most violent, came on one morning about the end of April, and lasted about two hours. It began as the others had done, but having continued about an hour, the pain became excruciating at the apex of the heart; the throat was so sore as not to allow of an attempt to swallow any thing, and the left arm could not bear to be touched, the least pressure upon it

giving pain; the sensation at the apex of the heart was that of burning or scorching, which, by its violence, quite exhausted him, and he sunk into a swoon or doze, which lasted about ten minutes, after which he started up, without the least recollection of what had passed, or of his preceding illness. I was with him during the whole of this attack, and never saw any thing equal to the agonies he suffered; and when he fainted away, I thought him dead, as the pain did not seem to abate, but to carry him off, having first previously exhausted him.

“ He then fell asleep for half an hour, and awoke with a confusion in his head, and a faint recollection of something like a delirium; this went off in a few days.

“ The affections above described were, in the beginning, readily brought on by exercise; and he even conceived, that if he had continued at rest, they would not have come on: but they at last seized him when lying in bed, and in his sleep, so as to awaken him. Affections of the mind also brought them on; but coolly thinking or reasoning did not appear to have that effect. While these complaints were upon him, his face was pale, and had a contracted appearance, making him look thinner than ordinary: and after they went off, his colour returned, and his face

recovered its natural appearance. On the commencement of the complaint, he suspected it to be rheumatism, and applied electricity to his arm, which took it off for the time only; he then, for two or three nights successively, took three grains of James's powder, without any abatement of the symptoms. He next had recourse to the camphorated julep, both at the commencement of the spasm, and while it was upon him, but obtained no relief; he tried Hoffman's anodyne liquor, in the dose of a tea-spoonful, and not finding it to answer alone, joined to it the camphorated julep, but the spasms seemed to be more violent. One night he took twenty drops of thebaic tincture, which made his head confused all the following day, but did not abate the spasms. The following day he took two tea-spoonfuls of the bark, which heated him, and gave him a head-ach, thirst, and dryness of his mouth, which prevented his continuing it. At the desire of Dr. David Pitcairn, he took the powder of valerian, an ounce a day; which seemed for the first two days to remove his spasms; but they returned on the third with more violence than usual, especially one evening at the Royal Society, which induced him to leave off the valerian, and he bathed his feet on going to bed in warm water, mixed with half a pound of flour of mustard, and

took a tea-spoonful of tincture of rhubarb in ginger-tea; also wore worsted stockings all night.

“ On Friday morning, the twentieth of May, [three weeks after the former acute symptoms] between six and seven o'clock, he had a violent spasm, attended with most violent eructations of wind from the stomach for nearly a quarter of an hour. Dr. Pitcairn, who was sent for upon this occasion, asked him, if there was any distress upon his mind that had brought on this attack; and he confessed his mind to have been much harassed, in consequence of having opened the body of a person who died from the bite of a mad dog, about six weeks before, in doing which he had wounded his hand; and for the last fortnight his mind had been in continual suspense, conceiving it possible that he might be seized with symptoms of hydrophobia. This anxiety preying upon his mind for so long a time, there is every reason to believe, was the cause of the present attack, and probably had also brought on the former ones, which were all after the accident which had impressed his mind with this horrible idea.”

Various remedies were tried with little advantage; but on Tuesday evening, washing his feet from sinapism which had been applied, “ the great toes appeared a little in-

flamed, and very tender; they were more painful after being bathed, and were troublesome all night. On Wednesday morning the inflammation and swelling in the great toes appeared evidently to be the gout, and the pain continued very acute till Thursday, when it began to abate; and on Friday was very much diminished.

“ He had no spasms after Monday the thirtieth of May; he, however, had threatenings or slight sensations, similar to those which preceded the spasms, and occasional eructations. Although evidently relieved from the violent attacks of spasm by the gout in his feet, yet he was far from being free from the disease, for he was still subject to the spasms upon exercise or agitation of mind. The exercise that generally brought it on was walking, especially on an ascent, either of stairs or rising ground; but never on going down, either the one or the other. The affections of the mind that brought it on, were principally anxiety or anger: it was not the cause of the anxiety, but the quantity, that most affected him; the anxiety about the hiving of a swarm of bees brought it on; the anxiety lest an animal should make its escape before he could get a gun to shoot it, brought it on; even the hearing of a story, in which the mind became so much engaged

as to be interested in the event, although the particulars were of no consequence to him, would bring it on. Anger brought on the same complaint, and he could conceive it possible for that passion to be carried so far as totally to deprive him of life; but what was very extraordinary, the more tender passions of the mind did not produce it. He could relate a story which called up the finer feelings, as compassion, admiration for the actions of gratitude in others, so as to make him shed tears, yet the spasm was not excited: it is extraordinary that he eat and slept as well as ever, and his mind was in no degree depressed. The want of exercise made him grow unusually fat.

The above account comprehends a period of about fifty days. At the beginning, the symptoms were all those of gout or inflammation of ligaments and tendons. As these, from their structure, are not capable of the changes which other parts undergo during inflammation, they are usually relieved by sympathy; and this sympathy is generally in parts similarly constructed, often in the corresponding parts of the corresponding extremity. But sometimes the sympathy is taken up by organs whose functions are necessary for the support of life, and the interruption of whose actions is attended with such consequences

as might be expected. In the present case, the inflammation was transferred to the arteries, particularly those of the head, the left side of the body, and upper extremity; and lastly, to the heart itself, where it induced certain changes in the texture of that important organ which will be explained hereafter. There was now a respite of inflammation; but the alteration in the heart rendered the returns of angina pectoris more frequent and more violent. (See Page 153).—Such appears to have been the case for nearly twenty days, when a more severe paroxysm occurred, and continued, with gradual remission, for four days. On the fifth the inflammation returned to the proper seat of gout, and the disease having very much exhausted itself in other parts, ceased after a few days.

Such was the progress of the complaint, as nearly as can be collected, from the imperfect manner in which the Notes are drawn up, and from the perpetual recurrence of the word spasm during the acute as well as the chronic stage. It may be right, however, to notice more particularly one passage given from a third person, and perhaps not immediately from him. The apprehension of injury from opening the body of a man who had died from the bite of a mad dog, is contrary to Mr. Hunter's doctrine, unless the

wounded part of his hand had come into contact with the saliva of the subject under examination. If such was the case, it should have been mentioned; if not, I suspect there must be some error in the account. We now proceed to Sir Everard's account of Mr. Hunter's slow convalescence.

“ As he had not drank wine for four or five years, he was advised to try it, which he complied with; but found the spasms more easily brought on after using it, than on those days on which he drank none; and they were always more readily produced after eating a hearty meal. He continued very much in the same way till August, when he went to Tunbridge and drank the waters for about a fortnight, without the least benefit, but rather conceived he was worse. From thence he hurried to Bath, the first week in September, and drank the water for four weeks, twice before breakfast and once at noon. Having drank them for about a fortnight, he began to bathe every other night in the hot-bath, and on the intermediate nights put his feet into the hot-bath waters, and sometimes rode on horseback. After being there three weeks, he did not find the least benefit; but on Monday, the beginning of the fourth week, he found, that his walking to the pump-room in a morning did not bring on the spasm as usual,

and found also, that he could extend his walk very considerably on that day. On Tuesday, he was not quite so well, although, when he compared that day with the preceding days, or rather months, he could say he was better; this seemed to be a step gained. In this state he left Bath, and continued the same through the whole winter. About the beginning of May, 1786, he began to believe that the exercise he was able to make use of affected him less; he found, that in the months of June, July, August, and September, he was able to take a long walk slowly. He could, however, at any time, bring on the complaint; for, upon using the least exercise, he felt as if it was coming on; and often, by forgetting himself, he brought it on slightly, which made him slacken his pace. In the month of October, when the weather became cold, he was obliged constantly to use his carriage, because he could not walk sufficiently fast to keep himself warm, although, in other respects, he was not affected by it. What appeared very extraordinary was, that the spasm did not come on equally upon all kinds of exercise; he often performed an operation, as cutting for the stone, or extirpation of a breast, which, from peculiar circumstances, required a considerable deal of fatigue, and lasted near an hour each time; yet the spasm

spasm did not come on. He was employed in embalming the Princess Amelia for three hours, in which time he was really fatigued, but had no spasm the whole time; yet, by going the length of Cavendish-square, and on towards Oxford Road, he was seized with a considerable spasm; but the fatigue he had undergone acted, probably, as a predisposing cause."

From this time the reader may suppose that Mr. Hunter lived only for the benefit of mankind, dragging on a painful existence, of which he would willingly have divested himself. But such a conclusion would be hasty; and it will not, I trust, be out of place to mention a short anecdote, which proves not only that he had a high relish for life under all these infirmities, but that he was far from feeling a wish to preserve the last mouldering embers from extinction. An experiment already mentioned, and its object, show, at an early period of life, how much he wished to protract his existence; and thirty years afterwards, at his own table, I heard him express a regret that we must die at all. This gave a physician, who was present, the opportunity of asking, whether it was true that Dr. Hunter had, in his last hours, expressed how pleasant a thing it is to die. Mr. Hunter's answer was, " 'Tis poor work when it comes to that; "

thus evincing his gratitude for all the blessings which render life desirable, without a wish to protract it when it could no longer be enjoyed.

We have seen, indeed, that, in common with most men in public life, he had now arrived at the second period of tranquillity. The first was when he was unnoticed, unenvied, and had scarcely any other pursuit than the acquisition of knowledge. The second was, when he had overcome every difficulty, and should have enjoyed quietude as well as honours. Even the alloyments of ill health produced less interruption than would have been felt by one less ardent in the pursuit of knowledge, and consequently a prey to *ennui*, or constantly attending to his own feelings.

“ These spasms (continues Sir Everard Home), although they did not increase in violence, were uniformly more frequent, and came on upon a greater variety of occasions; but as he became accustomed to their effects, less attention was paid to them.

“ Nothing particular occurred from this period until about the beginning of December 1789, in the evening, when at the house of a friend on a visit, he was attacked with a total loss of memory; he did not know in what part of the town he was, not even the name of the street when told it, nor where his own

house was; he had not a conception of any place existing beyond the room he was in, and yet was perfectly conscious of the loss of memory. He was sensible of impressions of all kinds from the senses, and therefore looked out of the window, although rather dark, to see if he could be made sensible of the situation of the house. This loss of memory gradually went off, and in less than half an hour his memory was perfectly recovered. About a fortnight after, as he was visiting his patients one forenoon, he observed, occasionally, a little giddiness in his head; and by three o'clock it was attended with an inclination to vomit. He came home and drank some warm water, which made him vomit severely; but nothing came off his stomach, except the water. The giddiness became severe, but went off again about seven or eight o'clock. About nine or ten it returned with more severity; and when going to bed, about eleven o'clock, he had entirely lost the centre of gravity, although he could move his limbs as the will directed. Light became offensive, and every thing had a kind of yellow cast: sounds were more acute than natural; objects had lost their true direction; a perpendicular, for instance, seemed to lean to the left, making, as nearly as he could conjecture, an angle with the horizon of fifty or sixty degrees;

objects were also smaller than the natural recollection of them; his idea of his own size was that of being only four feet high; also objects appeared to be at an unusual distance, as if seen through a concave glass; he had a slight sound in the right ear, at every stroke of the pulse; motion in his head was extremely disagreeable, he therefore moved with great caution, although coughing and sneezing did not affect it: during this illness, Dr. Pitcairn and Dr. Baillie attended him. It is difficult to describe sensations, especially when they are not common. The sensation which he had in his head was not pain, but rather so unnatural as to give him the idea of having no head: with all this, neither the mind nor the reasoning faculty was affected, which is not the case when such effects are produced from liquor. Objects in the mind were very lively, and often disagreeably so; dreams had the strength of reality, so much so as to awaken him; the remembrance of them was very perfect. The disposition to sleep was a good deal gone, an hour or two in the twenty-four being as much as could be obtained; these symptoms were much the same for about a week, and began gradually to diminish, so that in a fortnight he was able to sit up, and in three weeks went an airing in the carriage: cordial medicines were

given, and the body kept open. He felt a pain in the joint of the great toe, which inflamed gently, but soon left it: his pulse was rather increased in frequency; the urine at first was high coloured, deposited a sediment, and was rather diminished in quantity; but the retention in the bladder was very great, as he was not able to make water from ten o'clock in the evening till the same time the next evening, the quantity being very considerable, although not so much as would have been made in the same time had he been in health. The urine became of a yellow colour, and afterwards pale; the stools were solid; the taste of victuals was not impaired, except tea, for which he had no relish. Although he had no particular inclination to eat, yet his appetite was not much diminished. To excite the action of the gout, sinapisms were applied to the feet, but had not the desired effect. In the fourth week, the head not recovering so fast as was expected, a blister was applied between the shoulders, but had no immediate effect, probably did harm, by producing irritation and want of sleep. One night, not having above an hour's sleep, he drank a tumbler full of hot water, which set him immediately to sleep, in which state he continued near four hours; he took a hint from this, and drank a tumbler full of hot

water every night, just before he went to bed, which did not fail of putting him soon to sleep, and giving him a good night's rest.

“ The apparent obliquity of objects he accounted for, by supposing, that the two corresponding oblique muscles had an unnatural contraction, which moved the two eyes round near thirty or forty degrees. We shall suppose, that the obliquus superior of the left eye brought the eye-ball forwards towards the nose, while the obliquus inferior of the right eye contracted equal to the superior of the left; this turned the under part of the right eye inwards towards the nose, and the upper part outwards, which moved a lateral part of the eye upon the object, and gave it that obliquity.

“ His recovery from this indisposition was less perfect than from any of the others; he never lost entirely the oblique vision; his memory was, in some respects, evidently impaired, and the spasms became more constant; he never went to bed without their being brought on by the act of undressing himself; they came on in the middle of the night; the least exertion in conversation after dinner was attended by them; he felt, therefore, obliged to confine himself within a certain sphere of action, and to avoid dining in large companies. Even operations in surgery, if attend-

ed with any nicety, now produced the same effects.

“ In the autumn, 1790, and in the spring and autumn, 1791, he had more severe attacks than during the other periods of the year, but of not more than a few hours duration: in the beginning of October, 1792, one, at which I was present, was so violent that I thought he would have died.”

By the above history, it appears that Mr. Hunter, during the most vigorous period of life, was subject to inflammatory complaints, which occurred in the spring. These annual returns, as well as climacteric changes, were probably more regular, when the manner of living was less artificial; but I suspect they are too much overlooked at present. Our unreasonable scepticism to many ancient opinions, is a bad compliment to the industry and accuracy of our ancestors. It is true, such opinions are often obscured by oracular mysticism: but this is chiefly among the traditions of priestcraft, which it becomes us to separate from the observations of physicians. I cannot help, on this occasion, introducing a conjecture which has often occurred to me. It is well known that Julius Cæsar was subject, in the latter part of his life, to epileptic fits. Was not Spurinna's caution concerning the

Ides of March, suggested by the probability of a more severe paroxysm about the spring?

That the spring induced a higher degree of energy in Mr. Hunter, which often ended in inflammation, is proved by his whole history. In the spring of 1759, he had inflammation of the lungs. In the spring of 1769, 70, 71, and 72, he had regular fits of the gout. In the spring, 1773, he was seized, for the first time, with inflammation at the heart: he had then entered his forty-fifth year, the climacteric at which, as I have remarked in another place,* angina pectoris occurs; rarely sooner, and I have met with no instance much later. In the spring of 1776, he had severe inflammation in the vessels of the brain. In the spring, 1785, he had that very severe inflammation in the larger blood-vessels, and perhaps in the heart, which very much increased his angina pectoris. Another change now took place in his constitution—a disposition to obesity; and in the following spring, the increased energy excited by the season not amounting to inflammation, he found himself in better health, which continued through the summer. But from this time he was so frequently attacked with spasms as almost to preclude any dan-

* Philosophical Inquiry into the Hereditary Peculiarities of the Human Race.

ger of that very high health which induces inflammation. His subsequent complaints were, for the most part, in the autumn, about that period when what is called the winter campaign opens at the hospitals. Whether the last-mentioned attack, in October 1792, was connected with that event, we have no intimation; but, of one infinitely more serious, on the subsequent October, the exciting causes are sufficiently ascertained!

We have seen, a few pages before, that, entrusted with talents so eminently serviceable to mankind, he was not insensible of the frail tenure on which he held them, and that a fit of anger might, in one moment, dissolve the whole: we shall also find, that he was aware how dangerous such emotions might prove even if he could restrain any external expression. How then can we account for his not avoiding every source by which such feelings might be excited?

Mr. Hunter could not appear ignorant that his abilities and the improvements he had introduced into Surgery, entitled him to the rank he held in the profession. It would have been affectation had he seemed to doubt it; but, perhaps, he was not aware that those talents would have been insufficient without other adventitious circumstances; and that adventitious circumstances, without such abi-

lities, might, for a time, raise others to a similar rank in a profession, of the acquirements in which the public must for ever be inadequate or tardy judges.

To bring genius from obscurity into active life, is said to be injurious to the tranquillity of such characters. It is true; we sometimes find reason to regret that fondness for patronage which induces the well-intentioned to bring into notice those who distinguished themselves in their former circle. Such characters might be happier if, left to enjoy their superiority in one society, they were only occasionally and for amusement introduced to another. But in Mr. Hunter we should think less of what *he* gained by the change, than of the benefit mankind has derived from the opportunities he acquired. We may also be allowed to hope, that he made few, if any, sacrifices by the change, and to reflect that it was his own seeking. Could such a mind be satisfied with any walk of life unfavourable to those inquiries in which it was constantly absorbed?

If, however, with such endowments, such sources of delight, he felt dissatisfied that he had not all the pecuniary emoluments, rank, and influence which must ever be the lot of industry and good fortune, we can only regret, for his own and the world's sake, that he ever

attained so much as he did, or that by the longer life of his predecessors, he had not continued to look forward for what time and contingency could alone produce.

If it is really true that he felt disappointed at not filling all the offices in the army, held by his predecessors; if he was piqued at not possessing influence in the hospital equal to the credit derived from his name, we may feel surprised that so exalted a mind could descend to such trifles; and if he really expected all the emoluments from the pupillage which his celebrity brought to the house, he must have forgotten, that transcendent as his abilities were, they might have remained little known, or but little encouraged, but for that hospital and other public institutions.

Having expressed myself thus plainly, Mr. Hunter's friends will expect, and the reader will permit, that whatever apology may be offered for failings in so great a character should be produced. This is the more necessary, because there is a class of readers, whose view of things appears the most comprehensive and impartial; yet, whose knowledge of busy life is often the most imperfect. "There are persons," observes the last elegant Biographer of Gray, "whose judgment and whose experience incline them to think that worldly elevation tends only to lessen

such a mind ; and that the retirement of private life is the true scene in which such transcendent abilities can alone appear in their proper dimensions ; and this they assert, without a wish to close the avenues to wealth, to dignity, and to high offices ; or to suppress the generally honourable and justifiable desire of attaining them. THE WORLD KNOWETH ITS OWN. Such persons, when thoughts like these predominate, will call to mind what has been performed in the depth of privacy."—Nothing can be more expressive or just than the above observations ; and those whom leisure and the nature of their occupation permit to indulge in the region of fancy, will rejoice that Gray chose to continue so long to "fortune and to fame unknown." Not only poets require this seclusion ; great writers, "whether in law or divinity, have only leisure in a private station to do great things." No stronger proof of good intentions can be given, than such privacy devoted to good purposes. But the character I have been tracing, was engaged in a pursuit which could only be followed in public. A hospital was the scene of his studies and of his instructions. Without such an establishment, a practical art may, indeed, be improved, as subjects are never wanted who require relief. But this progressive improvement should be communicated, which is with

difficulty accomplished, except in an hospital. Even here, it may be urged, that he should have confined himself to improving an art which never can be perfect, and to the communication of those improvements. True: but this is an admission that he could not seclude himself from the world; and if he did not escape all the consequent dangers, it is at least unfair to condemn one who cannot be tried by his peers.

Another reflection very naturally arises. Mr. Hunter arrived at that pre-eminence in the civil and military departments of his profession which imposed particular duties on him to communicate all the knowledge which his extraordinary endowments had enabled him to acquire. These duties he lost no opportunities of fulfilling. But this forced him into a publicity, the consequences of which we are only beginning to develop. Should hereafter, one not less anxious for knowledge, nor less desirous of imparting it, regret that he is less fortunate in possessing the same opportunities, let him reflect that he is at least relieved from those duties which, with their pleasures, induce their attendant mortifications, and that he can work in his closet without the danger of insult or misrepresentation.

Every one must be aware, how difficult it is to suppress every sentiment of dislike:

and ambition is said to belong to noble minds. No one will question that such passions often lead to the aggrandisement of a family, or the glory of a nation (*omnia pro bono*). But, however necessary such offences may be, even in the moral government of the world, let those who possess, in other respects, sentiments like Mr. Hunter, be watchful against the shortest intrusion of certain dangerous guests. We hear of a just revenge, of a noble emulation, and even of a laudable ambition. The first expression is dangerous, to say the least. Is not the second too often another name for envy? And however we may disguise the last, let us reflect, that the nation from whom we borrow the term, was, of all others, the most ambitious; yet held the vice in the greatest abhorrence. That, whether allegorically or literally, we are told, it was the only vice of those who, from the summit of happiness, were doomed to eternal misery; that, in words which cannot be mistaken, the highest rewards are promised to the poor in spirit; and though they are taught to expect persecution, still their condition is called blessed.

Having alluded to the origin of certain expressions, *in video*, *ambo ire*, *ambire*, *ambitio*, it ought to be remarked, that no one ever imputed to Mr. Hunter a disposition to canvas

too closely the claims of the meritorious, still less any settled plan to circumvent. All he can be accused of is less than the shadow of that ambition which, in the unprincipled and unfeeling, is only controlled by the danger of discovery: yet it must, and did prove destructive to the peace of such a mind. Let others whose intentions are as good, relinquish ambition to such as pursue it as a business; nor let them be surprised, still less repine, if such industry and such means "have their reward." A reward so purchased, can only be enjoyed by such characters, and in the confines of Pandemonium. Why, then, should purer minds seek gratifications inconsistent with their genuine feelings!

It may be urged, that if the artful and unprincipled are never opposed, the government of the world would always remain in their hands. Let them be opposed; but, as their envenomed weapons fly in all directions, let not the good mix in the conflict, trusting to the only armour that will fit them. These reflections have suggested themselves from a long intercourse with the world, and not from any acquaintance with the then medical officers of the hospital. In most misunderstandings, both parties forget themselves; and no one can be offended, when Mr. Hunter's friend expresses his regret that he did not keep at a distance

from the scene of danger. But to what a length has the bare introduction of the word Hospital led me! Let me hasten then to an event which will plead my apology.

A law concerning the qualifications required for the admission of pupils had been carried, contrary to the wishes of Mr. Hunter. At this time he was applied to by a youth ignorant of the new regulation, and consequently unprovided with any documents. His former residence was at a great distance, and he was anxious not to lose time during an expensive stay in London, in fitting himself for professional service. Mr. Hunter, to relieve himself from the irksomeness of pleading or explaining, requested the case might be drawn up in the form of a letter, addressed to himself. This he proposed to bring with him at the meeting of the next board. Notwithstanding his great caution, however, he felt the probability of a contest which he might prove unable to support. On the succeeding Sunday, the writer of this had a very long conversation with him, in which we were insensibly led to his complaint; a subject of all others the most interesting to his friends, and on which he never was backward in conversing. He was willing to hear every argument against the probable existence of an organic infirmity; but it was easy to see that his own

opinion remained the same. Nor did he fail, on this occasion, to revert to the effect it had on his temper.

On the following board day, I am informed from good authority, he told a Baronet who called on him in the morning, that he was going to the hospital; that he was fearful some unpleasant rencontre might ensue; and if such should be the case, he knew it must be his death. On this occasion we are forced to reflect, that if his colleagues were not enough aware of the character they possessed among them, it became *him* at least indignant-ly to fly from the *tædium harum quotidianarum querælarum*. It may be urged, that he conceived it right to defend a youth against, what appeared to him, oppression, and to lessen the influence of a regulation, which, had it existed general thirty years sooner, would have excluded himself from the hospital, and perhaps deprived the world of his services. However this may be, the event was too literally accomplished. Sir Everard informs us, that, “ on the 16th of October, 1793, when in his usual state of health, he went to St. George’s Hospital, and meeting with some things which irritated his mind, and not being perfectly master of the circumstances, he withheld his sentiments; in which state of restraint he went

into the next room, and turning round to Dr. Robinson, one of the physicians of the hospital, he gave a deep groan, and dropt down dead!"

The death of a great man impresses us with certain feelings, which are much aggravated by time, place, and other circumstances.—The death of Cæsar appears the more awful, from his assassination in the Senate, among those with whom his intercourse was frequent and necessary, and even from the supposed prophecy. From some such cause as this, we find Mr. Hunter's professed enemy assuming a gentler yet a higher tone, giving him credit, as we shall hereafter say, for genius in discovery, and for more industry and order than is met with in most other men; even ranking among heroes one whom he had endeavoured, for ten years before, to under-value; producing two classical allusions, and finding an apology for his failings "in the nature of that disease which had been progressively increasing, and which at length was found thus abruptly to have been the cause of his death." "On being told of the event (says this writer), I recollected seeing the bay stallions returning home without their master; and this circumstance introduced to my reflection the sympathy which

Virgil has attributed to the war horse of young Pallus in his funeral procession—

“ Post bellator Equus positus insignibus Æthon
It lachrymans.”

If such were the sentiments of one in whose hatred was *nec modus nec pudor*, may we not be allowed to carry the illusion to an earlier source; and, disregarding *ἵππους δαιφρονος* confine ourselves to events going on, *περὶ Πατροκλοιο θανόντος*?*

But decency forbids me to say more than that, some time after death, his body was conveyed from the hospital in a sedan chair. Without any reference to the cause of this delay, or to the fatal spot, we shall follow the corpse to the place its owner quitted in the morning under such dreary impressions, and attend to the *exuvix* which contained this mighty mind.

“ On inspecting the body after death (we are not told how many hours), the following were the appearances: The skin in several places was mottled, particularly on the sides and neck, which arose from the blood not having been completely coagulated, but remaining nearly fluid.

“ The contents of the abdomen were in a natural state, but the coats of the stomach

* Iliad, P.

and intestines were unusually loaded with blood, giving them a fleshy appearance; and a dark reddish colour: those parts, which had a depending situation, as in the bottom of the pelvis, and upon the loins, had this in a greater degree than the others; this evidently arose from the fluid state of the blood. The stomach was rather relaxed, but the internal surface was entirely free from any appearance of disease; the orifice at the pylorus was uncommonly open. The gall-bladder contained five or six small stones of a light yellow colour. The liver and the other viscera exhibited nothing unusual in their appearance.

“ The cartilages of the ribs had in many places become bone, requiring a saw to divide them. There was no water in the cavity of the chest, and the lungs of the right side were uncommonly healthy; but those of the left had very strong adhesions to the pleura, extending over a considerable surface, more especially towards the sternum.

“ The pericardium was very unusually thickened, which did not allow it to collapse upon being opened; the quantity of water contained in it was scarcely more than is frequently met with, although it might probably exceed that which occurs in the most healthy state of these parts.

“ The heart itself was very small, appear-

ing too little for the cavity in which it lay, and did not give the idea of its being the effect of an unusual degree of contraction, but more of its having shrunk in its size. Upon the under surface of the left auricle and ventricle, there were two spaces, nearly an inch and a half square, which were of a white colour, with an opake appearance, and entirely distinct from the general surface of the heart: these two spaces were covered by an exudation of coagulating lymph, which at some former period had been the result of inflammation there. The muscular structure of the heart was paler and looser in its texture than the other muscles in the body. There were no coagula in any of its cavities. The coronary arteries had their branches which ramify through the substance of the heart in the state of bony tubes, which were with difficulty divided by the knife, and their transverse sections did not collapse, but remained open. The valvulæ mitrales, where they come off from the lower edge of the auricle, were in many places ossified, forming an imperfectly bony margin of different thicknesses, and in one spot so thick as to form a knob; but these ossifications were not continued down upon the valve towards the chordæ tendineæ.

“ The semilunar valves of the aorta had lost their natural pliancy, the previous stage to

becoming bone, and in several spots there were evident ossifications.

“ The aorta, immediately beyond the semi-lunar valves, had its cavity larger than usual, putting on the appearance of an incipient aneurism: this unusual dilatation extended for some way along the ascending aorta, but did not reach so far as the common trunk of the axillary and carotid artery. The increase of capacity of the artery might be about one-third of its natural area; and the internal membrane of this part had lost entirely the natural polish, and was studded over with opaque white spots, raised higher than the general surface.

“ On inspecting the head, the cranium and dura mater were found in a natural state. The pia mater had the vessels upon the surface of the two hemispheres of the brain turgid with blood, which is commonly found to be the case after sudden death.

“ The internal structure of the brain was very carefully examined, and the different parts both of the cerebrum and cerebellum were found in the most natural and healthy state; but the internal carotid arteries, as they pass by the sides of the cella tursica, were ossified, and several of the ramifications which go off from them had become opaque and unhealthy in their appearance. The vertebral

arteries lying upon the medulla oblongata had also become bony, and the basillary artery, which is formed by them, had opaque white spots very generally along its coats.

“ From this account of the appearances after death, it is reasonable to attribute the symptoms of the disease to an organic affection of the heart. That organ was rendered unable to carry on its functions; whenever the actions were disturbed, either in consequence of bodily exertion, or affections of the mind.

“ The stoppage of the pulse arose from a spasm upon the heart, and in this state the nerves were probably pressed against the ossified arteries, which may account for the excruciating pain he felt at those times.

“ The other symptoms may be explained from the defect in the valves, and the dilatation of the aorta, which had lost its elasticity.

“ In the last attack, the spasm upon the heart was either too violent in the degree of contraction, or too long continued to admit of relaxation, so that death immediately ensued.”

Whilst reading this account, it is impossible not to be struck by the omission of a number of particulars, which would have been attended to in the same spot, had the subject under consideration been living. The first minute would have been, how long after death the examination took place; next, had the body

stiffened? next, did the blood (which, we are told, had not been completely coagulated, but remained nearly fluid, and afterwards is described in a fluid state) coagulate at any future period? All this must now be conjectured. We may remark, that the only muscles described (the muscular part of the stomach and the pylorus) were in what may be called a relaxed state; that there were no coagula in the heart; but, whether it contained fluid blood, and on which side, we are left quite uninformed. In a former passage, I remarked how correctly the deceased described, during life, what might have been expected from the examination of a body, after such a death as his own proved to be.—His words are,

*“ When death takes place from violent affections of the mind, it must be referred to the universal influence which the mind has over the body.”** In such cases, he had before remarked, we meet with “ a total and instantaneous privation of sense and motion, without convulsions; consequently, no stiffness of the muscles is produced, and the blood remains uncoagulated.”

Thus, as far as we are informed, the ap-

* *Animal Economy*, 2d. Edit, p. 131. It is remarkable that this passage is not to be met with in the first edition; but is added in the second, published about a year before the author's death. See also page 83, et seq. of this work.

pearances were exactly such as he taught us to expect after sudden death from violent affections of the mind. Let us now proceed to compare the morbid appearances in the various organs with the symptoms during life.

The opaque spot in the heart was probably formed during the severe illness of 1773, [See page 140] at which time the heart refused to act, the invariably immediate consequence of high inflammation in a muscle. The future consequences must depend on the alteration, if any, which has been induced by the inflammation. Sometimes the muscle never recovers, and the limb is, in part, paralysed. Should such be the condition of the heart, the circulation is carried on feebly till the patient expires, without any external cause; or the heart is dilated by the afflux of blood on which it is at first unable to contract, and after a time contracts with irregularity, from an incapacity to acquire its original form. Sometimes from an alteration in its texture, its actions become irregular; and consequently, the action of the lungs. This constitutes angina pectoris, with which, Sir Everard Home informs us, Mr. Hunter was afflicted for the last twenty years of his life, the exact date of this illness.

The symptoms which occurred in the spring of 1776 [See page 145] are readily explained,

by the appearance found within the cavity of the cranium. It is probable, that the arteries of the brain suffered high inflammation; which, by contiguous sympathy, would extend to the neighbouring parts. When the internal coat of an artery is highly inflamed, the pain is often so intense as to extinguish life: of this I have known three instances. On examination after death, the surface is found rough or sabulous, with calculous matter loosely attached by fibrine. If the patient survives, the inflammation will appear to have produced only a deposition of this matter under the internal membrane, or, more probably, a new membrane has been formed of coagulated lymph, which gradually assumes all the character of the original membrane, and under which the calculous matter may be felt; and this, I suspect, has given rise to the controversy between the English and Italian pathologists concerning the nature of aneurism. The extremely sensitive state of the sight, of the hearing, and of the other senses, is readily accounted for, as the inflamed arteries are all seated in parts where the optic, auditory, gustatory, and olfactory nerves communicate with the brain, and with the medulla oblongata. The increased action induced by inflammation must have increased the sensitive powers of these parts.

During the severe paroxysms of the spring, in 1785 [See p. 150], probably calculous deposition took place in the aorta, which is described as studded over with opaque white spots. "The complaint," says Sir Everard Home, "appeared to be in the vascular system, for the larger arteries were sensibly contracted, and sore to the touch, as far as they could be touched, principally in the left arm." Inflammation or continuous sympathy, without the continuity of inflammation, would produce this effect. Whether these arteries were really inflamed cannot now be ascertained, nor whether they had any calculous deposition, as we have no account that they were examined. In this condition, the pulse would be obscure, and sometimes even cease; every action of the artery giving pain, with an intensity proportioned to the degree of inflammation or of sympathy.

From this time, the injury suffered by the parts subservient to the circulation was much increased, and the action of the heart rendered irregular by the slightest increase of bodily exercise or mental anxiety. In such a state, even without any apparently exciting cause, such symptoms will occur once in twenty-four hours, as if, in the course of that period, some effort was made for the more perfect oxygenation of the blood. From the

uneasiness felt at every returning paroxysm, the patient learns, by degrees, to restrain, as much as possible, every means by which the action of the heart is increased. Hence, its muscles, like all others which are less exerted, become diminished in size, firmness, and colour. To this we may impute the diminution of the heart; and also, that "its muscular structure was paler and looser than the other muscles of the body."* That the pain arises from a cause different from the mere pressure of the nerves against the ossified arteries is well ascertained, because the paroxysms have often existed for years in subjects which, on examination after death, have not exhibited ossification of the coronaries. We must not confound this restrained action with incapacity to contract; for, in the latter case, from whatever cause the incapacity may arise, the heart will be enlarged.† It will also be found enlarged, if its action is continued without restraint, under a defective organization.‡

The symptoms of 1789 [See page 162] were probably the effect of a slighter degree of inflammation about the substance of the brain,

* Treatise on the Blood, &c. Part I. chap. iv. on the colour of the blood, p. 46.

† Id. p. 147, et alibi.

‡ Id. p. 55.—Also, Sir D. Dundas's Paper on Rheumatism, in the Med. Chir. Trans.

or of some irregularity in its supply of blood from the condition of the arteries. The history is highly interesting, and might lead to a belief that not only the parts of the brain contiguous to the nerves distributed to the organs of sense, are assigned distinctly for appropriate offices, but also that other parts have their peculiar and distinct functions. Without delirium, we find the patient incapable of combining the ideas of space sufficiently to reconcile himself to what he knew of the place he was in, or even to his own mathematical figure. Yet, in all other respects, rational and well aware of his own deficiency.

Such appears to have been the history of Mr. Hunter's suffering, compared with the examination after death. His remains were interred in the vault under the parish church of St. Martin in the Fields, attended by a few of his oldest medical friends.

“ At the time of his death, (continues Sir Everard Home) he was in the sixty-fifth year of his age, the same age at which his brother, the late Dr. Hunter, died.” Such was the end of two brothers, who raised the anatomical school of London to its present celebrity, and in their Museums erected their own monuments! Both arrived in London with no capi-

tal but genius, industry, and integrity; the first almost without introduction. Each arrived nearly at the same age, finished his career in the same time, and each in the *arena* of his own labours. The first struck with the approaches of death in his own theatre; and in his expiring moments, anxious to return, that he might communicate a physiological fact he never could ascertain till then.—The other expiring on the spot!

The late Dr. Denman used to say, that one was a man of order the other a man of genius. This could only be meant in comparison with each other, for compared with the rest of mankind, both were men of genius, both men of order; which shows, that genius, indulged in its own pursuits, is not inconsistent with order. When confederates quarrel for prey, we view the scene with indifference, if not with gratification. When one party is the oppressor, our feelings are divided between sympathy and indignation: but when two congenial, and in most respects amiable, spirits, tenants of the same womb, are separated by an event which scarcely interests an individual except themselves, can we fail to regret, that in such characters, the short period of human existence should not be embellished by all the delights of the purest and most exalted friendship!

Mr. Hunter was below the middle stature, well-formed for muscular exertion, somewhat high in the shoulders, which were rather forward. He was naturally active and capable of great exertion, mental and bodily. His countenance was open, and though strongly impressed with thought, was by no means habitually severe, but softened into tenderness, or sparkled with brilliancy, according to the impression on his mind. Sir Everard Home remarks, that Lavater, on seeing his print, remarked, "That man thinks for himself." I shall not inquire whether any importance is attached to such a remark, especially as a genuine resemblance of the features is so well preserved in the portrait by such an artist as Sir Joshua Reynolds, and most fortunately in Mr. Sharpe's very masterly engraving, which has been so often imprinted, and hitherto without any injury. The head prefixed to this work is from a bust by Mr. Flaxman, in the execution of which he was assisted by a cast taken during life.* It therefore offers a most exact copy of the features; but, it is right to add, that the figure of the skull was not taken.

Mr. Hunter's temper is said, by Sir Everard Home, to have been "very warm and impa-

* This event is mentioned in the Treatise on the Blood, &c. page 55. See Appendix.

tient, readily provoked, and, when irritated, not easily soothed." I have heard something like the last charge from Mr. Bell, who, from living with him, had similar opportunities of knowing his true character; and though it cannot nor ought to be defended; yet we may be allowed to offer a physical cause. When Mr. Hunter felt himself offended, it was probably much more painful to himself than to the other party. The only mode of reconciliation must have been by reverting to the subject, if not permitting an interview. Either of these, with such an organization, must have produced a conflict, which, if not dangerous, would at least be dreaded; nor could even the recollection of the events be unattended with that sort of uneasiness which would excite a wish to banish the subject entirely from his mind. But this was very remote from secret revenge or dark intrigues; and the effect on others was not less so. Mr. Bell, though he probably spoke from recent events, was so sensible of his friend's true character, that, with the mention of his infirmities, he joined the highest encomiums on his virtues, his talents, and the kindness of his disposition. Mr. Clift, who was with him during the latter period of life, when his infirmity had so much increased, speaks of his temper as peculiarly amiable.

Sir Everard proceeds: "His disposition was candid and free from reserve, even to a fault." I have copied these words, but shall at present forbear any comment. "He hated deceit, and was above every kind of artifice; he detested it in others, and too openly avowed his sentiments." Is this a fault too? "In conversation he spoke too freely, and sometimes harshly, of his contemporaries; but if he did not do justice to their undoubted merit, it arose not from envy, but from a thorough conviction that surgery was yet in its infancy, and he himself a novice in his own art; and his anxiety to have it carried to perfection made him think meanly and ill of every one whose exertions in that respect did not equal his own." This means, I presume, that recollecting how repeatedly he had proved every fact before he offered it to the public, and how little he had accomplished in comparison with what remains to be done, he felt impatient at hearing of a discovery, the fallacy of which he could perceive at the first mention, or which, being the subject of experiment, ought to have been proved before it was offered to the world. On one of these occasions, it is said that he used expressions somewhat too strong, and to a gentleman, who, like himself, had lived in a society, the habits of which might have taught him differently. This pro-

duced a most absurd but very fortunate conflict, as it ended in a mutual explanation by the intervention of friends. I scruple not to call it fortunate, because we have seen what was afterwards the effect of suppressed feelings. It is but justice, however, to add, that in this single instance, in which Mr. Hunter so committed himself, he appears to have been the aggressor; and it is now doubtful whether he was not wrong in his opinion as well as in his manner of expressing it. Yet, after all, when we allow for the infirmities of our nature, who will not forgive, whilst he may regret that honest expression of effervescence, on both sides, which ended with an explosion. Compare this with the designing craft of Wolsey, when he resolves that, "Buckingham shall lessen his big looks;" and to use the language of the latter, "at this instant he bores [stabs] me with some trick." If candour and freedom from reserve are faults, we can only join in the exclamation of a third dramatis persona in the same piece, "God mend us all!"

That Mr. Hunter felt strongly, and could express himself with equal point and openness, is very well known by those who were best acquainted with him. I shall mention only a single sentence, the force and readiness of which showed with how much diffi-

culty he must have restrained his wit on many other occasions.

The first edition of his invaluable *Practical Treatise* was published at the same time that a political work appeared which engrossed the conversation of all companies. To both there were several answers. On this occasion, a gentleman at Mr. Hunter's table took an opportunity of observing, that every popular work was sure of an answer, inasmuch as such a work is sure of giving publicity to the answerers. Mr. Hunter could not mistake the meaning, nor could any one doubt by his features what were his feelings: "We have all of us (said he) vermin that live upon us."

In his writings, in which he had time for reflection, such severity would have been less excusable. Spalanzani is, I believe, the only person who has cause to complain of him; and, as is generally the case, this is the only controversy in which Mr. Hunter was unable to maintain his ground in every part of an extensive field. His adversary, it is true, varied his experiments without reason, without method, almost without end, and certainly without a knowledge of what he was seeking; yet still a difficulty remained, which, as he was unable to point it out, Mr. Hunter has left unexplained. In the Appendix, this will

be enlarged on by some remarks on his paper concerning Digestion.

But to real merit, no person was more anxious to pay ample tribute. Which of his contemporaries, when he has occasion to mention them, does he not treat with respect? Do the names of Pott or Haller ever occur, but to give them full credit for all their merits or discoveries? Is he ever backward in paying due respect to his brother after they were separated, or to his memory after death?* I have heard him called the Cerberus of the Royal Society. Is there a more faithful animal than such an allusion would lead to? and how much must we regret that his services could not be immortal, like those of his fabled prototype.

The following makes part of the description of Mr. Hunter, from one who rarely saw him in private. It must, therefore, have been collected from others, or in public scenes.

“ I believe John Hunter to have been one of the most industrious of men. The way in which his time was devoted, before he obtained the public appointments, was as fol-

* See Notes in Treatise on the Blood, page 78, 146, et alib.

lows:—He rose very early in the morning, and went immediately into the dissecting-room, where he sometimes dissected, and gave directions concerning what he would have done in the course of the day. After breakfast, he attended to those patients who came to his house. At eleven he went abroad; and was employed in visiting patients—attending at the hospital—and, when the occasion called for it, in opening dead bodies. He ate very hearty at his dinner, and rarely drank more than a glass of wine, and sometimes not that. In the evening, he was engaged in reading his lectures, and writing down observations which he had made through the day, or preparing for the next coming publication. He seldom retired to rest till twelve or one o'clock.

“ His person was about the middle stature; he was rather robust, but not corpulent; his shoulders were broad and high, and his neck remarkably short: by the exertions which he constantly made, after the manner of something like a cough, he seemed as if he solicited to set the circulation of blood a going. His features were hard; cheeks high; eyes small and light; eye-lashes yellow, and the bony arch protruded. His mouth was somewhat under-hung. He wore his hair curled behind. His dress was plain, and none of the neatest. He was frequently seen to smile in conversa-

tion; but it was generally provoked from a ridiculous or a satirical motive."

The most exceptionable part of the above is the conclusion. Mr. Hunter was neat, though plain in his dress, and could laugh as heartily and as frequently as most other men; for it is a general remark, that only fools laugh, unless the " motive is ridiculous."

That he might be more severe than prudent is highly probable: but if to keep the heart with all diligence is, in common characters, the difficult business of life, what allowance must we not make for one who, besides anxiety for intricate cases, was always engaged in experiments not less important to human life than interesting to himself; all this too with an infirmity, the effects of which proved a constant source of interruption, and frequently of pain. I say nothing of his tardy emoluments. This is, by Sir Everard Home, very fairly imputed to the natural independence of his mind, which induced him rather to cultivate the science than the profits of his profession. With the former, it must be admitted, a true philosopher should be contented, and certainly few men bore poverty better than John Hunter; and when arrived at the height of honours and independence, his attention to those with whom he had for-

merly conversed seemed to increase, as if he was fearful lest a difference in his carriage should be felt or even suspected. I have already mentioned the long and interesting conversation between us at a time when public and private business pressed heavily upon him, and it is with great pleasure his friends listen to the repeated tale of Mr. Gough, who has the charge of the menagerie at Piccadilly, "When I called (says he), if the house was full of patients, and carriages waiting at the door, I was always admitted. ' You (said Mr. Hunter) have no time to spare, as you live by it. Most of these can wait, as they have little to do when they go home." Whether, therefore, we consider the honesty of Mr. Hunter's intentions, or the kindness of his disposition, we shall be at no loss for an apology for his few failings: whilst his original genius and unwearied application place him among those very few characters, who, when opportunity allows a full display of their talents, teach us more than was known before, and how to improve that knowledge.

Taking a review of these Memorabilia, collected from all quarters, we find united in one character a genius unrivalled in a science the most important to our happiness in this world: a softness of temper that dwelt with such ecstasy on the milder virtues, as to

“shed tears at the recollection of acts of gratitude and compassion:” a contempt of danger, which, for the security of others, exposed him, unprotected, to two most ferocious animals; and a contempt of wealth, with a sense of rectitude, which, in assisting others, brought him into difficulties that affected his own health—virtues which, though they might be sometimes obscured by ill health and human infirmities, were cultivated to the last; whilst nothing ever lessened his ardour in acquiring, or his readiness in imparting, useful knowledge:—when I reflect on all this, I cannot help congratulating myself, like the enlightened disciple of the ancient sage, in having enjoyed a familiar intercourse with one who

ἰδοὺν τοιοῦτος ἰσχυρὸς εἰς αὐτὴν ἀρετὴς καὶ εὐδαιμονίας· οὐδὲ
 τὴν μὴ ἀρετὴν ταῦτα, περιβαλλὼν τὸ ἄλλω ἥθει; πρὸς ταῦτα ἡττα
 ῥησεται.*

Some surmises, which I have heard and read, oblige me to add a few words. I have heard Mr. Hunter described as a Materialist. If by this is meant, that he never made any inquiries but into matter, most reasonable men will be satisfied that his inquiries on that subject were so accurately conducted: if it implies that he had any doubt of a First Cause, known only by the effects of unsearchable

* Xenophontis Memorabilia.

power and goodness, nothing can be more unjust than such a suggestion. His whole philosophy, as we shall presently see, was guided by the first of these considerations, and all his works abound with references to the latter. If, not having directed his inquiries to the subject, he had not the same conviction of Revelation, we can only regret that one, whose prospects were in other respects so fair, should not have enjoyed a foretaste of an hereafter; and if such a conviction would have taught him to set less value on the transitory events before him, how much would the world have gained from the prolongation of his life by such tranquilizing reflections!



APPENDIX.

*Extract of a Letter from the Rev. JAMES FRENCH,
Minister of East Kilbride, to the Author.*

" SIR,

" I HAD the honour of your favour of the 11th curt. together with one from Mr. Gillespie, minister of Kells, of the 15th curt. on the 22d. I lost no time in getting a search made into our baptism register, and have an extract from our Session Clerk, bearing in substance, that Mr. John Hunter was born 13th February, and baptized 30th March, 1728. His father's name was the same with his own. His mother is marked — Paul in the Register, from which it appears that her first name was unknown."

By the tenor of the above, the Register was made without the presence of a person who could give information of the Christian name of Mrs. Hunter, and therefore who was not likely to have been present at the birth. The anniversary at the College is founded on a traditional account that Mr. Hunter used to date his birth on Valentine's Day. It is, therefore, probable, that he was born in the night between the 13th and 14th of February.

It may not be entirely out of place to add a remark here, which was intended for page 14.—There is a common opinion, sanctioned by Fernelius and many others, that the children of old people partake of their parents' infirmities. In addition to the proofs to the contrary, contained in the "Treatise on the Hereditary Peculiarities of the Human Race," Mr. Hunter furnishes one more striking than all. Born at a very advanced period of his father's life, and the last of his mother's children, he was not only peculiarly vigorous in body and mind, but his vessels were able to withstand the most violent effects of inflammation in vital parts: a property always greatest in the vigour of life, and in the best state of health.

*Extracted from the Registry of the Prerogative
Court of Canterbury.*

THIS is the last Will and Testament of me, JOHN HUNTER, of Leicester Square, in the county of Middlesex, Esquire, Surgeon and Inspector General of His Majesty's Forces; as follows:—I give and confirm all that my capital messuage, lands, and hereditaments, situate, lying, and being in the parish of Kilbride, in the shire of Lanerk, in North Britain, with the rights, royalties, members, and appurtenances to the same belonging; which premises descended and came to me upon the decease of my late brother, William Hunter, of London, Doctor of Physic, and which premises had descended to him upon the decease of our father, John Hunter, and had been in his family for many generations; unto and to the

use of John, my dear and only son, for his life, with remainder to his first and other sons, in tail male successively; with remainder to his daughter or daughters, if more than one, as tenants in common, and the heirs of their respective body or bodies; with remainder to my own right heirs for ever. I also give to my dear and esteemed friends and relations, Matthew Baillie, of London, Doctor in Physic, and Everard Home, of Leicester Square aforesaid, Surgeon, and his heirs and assigns, all my capital messuage, messuages, lands, and hereditaments, situate, lying, and being at Earl's Court, in the parish of Kensington, and the county of Middlesex, with their and every of their rights, members, and appurtenances, to have and to hold the same unto and to the use of the said Matthew Baillie and Everard Home, their heirs and assigns for ever, upon trust nevertheless to sell the same, and receive the consideration-money for which the same shall be sold, and to give receipts for the same unto the purchasers thereof, and I hereby will and direct that their receipts shall be sufficient discharges to the purchasers thereof, and that the monies arising by such sale, and also the rents and profits of the same lands until such sale shall be had and perfected, shall be considered as part of my personal estate, and not as land, and shall be paid and applied by them upon the trusts hereinafter mentioned concerning the same, and of any Codicil thereto to be made by me; and for want of full and complete directions concerning the same, or the distribution thereof by this my Will, or any Codicil thereto to be made by me, that then, as to such parts of such monies that shall not be completely and entirely di-

rected, given, or disposed of, the same shall go and be applicable, payable, and distributable as a part of my personal estate undisposed of, according to the Statute for distribution of Intestates' Estates: And I also give to the said Matthew Baillie and Everard Home, all my Collection of Natural History, and the cases and other things belonging thereto or used therewith, upon trust that they offer the same to sale in one entire Lot to the Government of Great Britain, at such price as may be considered as reasonable between both parties; and in case of refusal, then it may be offered to sale to any Foreign Government or State upon the like terms; and in failure of such sale, then to dispose of the same in an entire Lot, in such manner as they shall think proper: And I hereby direct, that all my just debts be paid by and out of the monies to arise by sale of my real estate so directed to be sold as aforesaid; and out of the rents and profits thereof until such sale shall be had, and also by and out of the monies to arise by sale of my Natural History, and also by and out of my other personal estate. And I give and bequeath the residue and surplus of all such monies, and all other my personal estate, unto Ann, my dear and esteemed wife; John, my son; and Agnes, my only daughter; share and share alike; provided that, in case of the death of my son before he attains twenty-one, or of my daughter before she attains twenty-one, or marriage, then it is my will and intent that the capital of the share or part of such of them so dying, shall go and be paid to the survivor of them. And I do hereby nominate and appoint my said wife, and also the said Matthew Baillie and Everard Home, Guardians to my

two children until they shall severally attain twenty-one years of age; and also Executors of this my Will.

In witness whereof, I, the said John Hunter, have hereunto set my hand and seal, this eleventh day of July, in the year of our Lord one thousand seven hundred and ninety-three.

JOHN HUNTER. (L. S.)

Signed, sealed, published, and declared, by the said John Hunter, as and for his last Will and Testament, in the presence of us, who in his presence, at his request, and in the presence of each other, have subscribed our names as witnesses thereto.

JOHN GAWLER.

HENRY GAWLER.

OWEN JONES.

Proved at London, 2d November, 1793, before the worshipful Samuel Pearce Parson, Doctor of Laws and Surrogate, by the oaths of Ann Hunter, widow, the relict; Matthew Baillie and Everard Home, Esq. the executors; to whom administration was granted, having been first duly sworn to administer.

GEO. GOSTLING,	} Deputy Registers.
NATH. GOSTLING,	
R. C. CRESWELL,	

The following Abstract of a small part of Dr. Hunter's Will was taken by the late Mr. Curtis, of Doctors' Commons.

Dr. WILLIAM HUNTER, deceased.

Residue of Testator's Personal Estate in England, left to his Nephew, Dr. BAILLIE.—No other disposition of Property.

Testator gives an annuity of £. — per annum to his sister, Mrs. Baillie, and £. — each to her two daughters; and charges same on the above-mentioned Residue, unless he should afterwards charge such annuities and legacies on his estates in Scotland.—No other mention is made of estates in Scotland.

Letter from JAMES HILL, Esq. to the Author.

SIR,

Referring to my last letter to you on the subject of Dr. William and Mr. John Hunter, I have now to inform you, that, upon inspecting the titles of the estate in Kilbride, which belonged to Dr. William, I observe Dr. William made several purchases of parts of the estate, which I am informed had been sold for the support of a large family; there was no destination or entail of the family estate, and therefore it was in the power of Dr. William to have taken measures for disposing of it as he thought proper; and in fact Dr. William did convey his whole estate, heritable and moveable, including these lands, to Dr. Baillie and two other Gentlemen, in trust for certain purposes. In this settlement, Dr. Baillie was appointed Legatee to the residue and reversion of his estate:—there was a considerable reversion of his estate, besides the lands in Kilbride; and Dr. Baillie conveyed these lands to Mr. John Hunter, because he thought he

had a better natural claim to them than himself. Dr. Baillie's conveyance to Mr. John Hunter is dated October, 1784. Mr. John Hunter, in taking up the estate, preferred doing it in the line of succession, which it was in his power to do; for having got the conveyance from Dr. Baillie, no person had any right to oppose him.

I have communicated these circumstances to you, that, if you mention any thing relative to the succession of the estate of the Hunters in the Life of Mr. John, the circumstances may be stated as they are.

I am, Sir,

Your respectful Servant,

JAMES HILL.

Glasgow, 11th April, 1816.

To Dr. Adams, &c.

The whole tenor of these papers shows that it was from a sense of justice the estate was given to the person who had the best right to it; and it was probably the wish of the donor, that the title should be described as we see it in Mr. Hunter's will. However that may be, Mr. Hill's letter is a sufficient apology for every document I have offered.

Sir Everard Home informs us, that for thirty years after Mr. Hunter's arrival in England, his income did not exceed a thousand pounds per annum. During this time he must have been embarrassed; and it is not likely that his increased income for the remainder of his life, with increased expences, should do much more than relieve him from former difficulties

Unfortunately too, the nature of his complaints rendered his life not insurable. To the honour of the nation, this has been duly considered. It was not, however, till the year 1799, six years after Mr. Hunter's death, that parliament voted fifteen thousand pounds for the purchase of *Doctor John Hunter's* Musæum, for the use of the public.

In 1806, a grant was voted to the Royal College of Surgeons of London of another fifteen thousand pounds, to erect a proper and commodious building in London, for preserving and extending the Collection of the late *Master Hunter*, and for erecting a theatre for the delivery of public lectures on anatomy and surgery.

In the year 1810, a further sum of twelve thousand five hundred pounds was voted to the College, to enable them to erect a proper building for their Museum and a Theatre, with an appropriate front in Lincoln's Inn Fields.

No doubt a generous public would not leave Mrs. Hunter without a proper annuity before the grant of 1799, but what that was does not appear.

The reader must be struck with the two instances in which Mr. Hunter is improperly described. In the first, as *Doctor John Hunter*; in the latter, as *MASTER Hunter*. The above is, however, a faithful copy from the printed record of the King's printer.

I have transcribed the following passage from Dr. S. F. Simmons's *Life of Dr. Hunter*, as a not less instructive than amusing instance of the different characters of two brothers.

" When he began to practise midwifery, he was desirous of acquiring a fortune sufficient to place him in easy and independent circumstances. Before many years had elapsed, he found himself in possession of a sum adequate to his wishes in this respect, and this he set apart as a resource of which he might avail himself, whenever age or infirmities should oblige him to retire from business. I have heard him say, that he once took a considerable sum from this fund for the purposes of his Museum, but that he did not feel himself perfectly at ease till he had restored it again. After he had obtained his competency, as his wealth continued to accumulate, he formed a laudable design of engaging in some scheme of public utility; and at first, had it in contemplation to found an anatomical school in this metropolis. For this purpose, about the year 1765, during the administration of Mr. Grenville, he presented a memorial to that minister, in which he requested the grant of a piece of ground in the Mews for the scite of an anatomical theatre. Dr. Hunter undertook to expend seven thousand pounds on the building, and to endow a professorship of anatomy in perpetuity. This scheme did not meet with the reception it deserved.—In a conversation on this subject soon afterwards with the Earl of Shelburne, his lordship expressed a wish that the plan might be carried into execution by subscription, and very generously requested to have his name set down for a thousand guineas. Dr. Hunter's delicacy would not allow him to adopt this proposal. He chose rather to execute it at his own expence; and, accordingly, purchased a spot of ground in Great

Windmill Street, where he erected a spacious house, to which he removed from Jermyn Street in 1770. In this building, besides a handsome amphitheatre, and other convenient apartments for his lectures and dissections, there was one magnificent room, fitted up with great elegance and propriety as a museum."—*Account of the Life and Writings of Dr. W. Hunter, by S. F. Simmons, M.D. F.R.S. 1783.*

How much it is to be wished, that men, successful at any period of life, would consider the necessity of making such a provision. That prudence is not inconsistent with genius, if the above is not a sufficient proof, we might produce Voltaire, who was an early œconomist. No man was more sensible of the propriety of such habits than Mr. Hunter. "Every man (said he) should be an œconomist; for if he has even more than his wants require, he may assist the poor:" a virtue in which he never was deficient, nor even in the more irksome task of soliciting the aid of others in behalf of deserving brethren.

MR. HUNTER'S EDUCATION.

THAT Mr. Hunter's early education was neglected is recorded by Sir Everard Home, and it is not likely that he should improve himself in the dead languages after engaging in studies so exactly suited to his turn of mind. In conversation, however, his language was not only strictly grammatical, but his words always well chosen. Probably, he might have improved, in these respects, by the early conversations with his brother. It is generally supposed, that his

short papers were revised by Sir George Baker, before they were shown to the public. But this is no proof of incapacity, as few prudent men choose to commit themselves without the revision of a friend. His work on Syphilis, it is well known, was examined by a number sufficient to be termed a committee; and it is certainly the worst written and the least intelligible of all his performances. Probably the whole, submitted to the inspection of any one of his committee, might have been rendered uniform and perspicuous. His last work, which was not all printed off at his death, was, I believe, entirely his own. It abounds with typographical errors throughout. It is not certain how much was printed during his life; but, in a note in the early part (page 41) is the following quotation; ("Haller's Physiology, vol. ii. lib. v. Sanguis, sect. xi. page 51.")—The mixture of Latin and English, and the contraction of a Latin word ending with a vowel, to say the least, has an awkward appearance.

If he read less than most men, this is easily accounted for by his other labours. But, in all his publications, it is easy to see that he never failed to make himself informed of what had been done by others, and to do them full justice. I have learned from a gentleman very intimate with him through the greatest part of his life, that when he had made a discovery, it was his custom to relate it to Mr. Cruikshank; who frequently, to his no small mortification, informed him, that Haller had described the same thing before. This is enough to show his readiness to be informed, and to do justice to others,

The novelty of his opinions obliged him, as he ob-

served in his Lectures, to use new expressions ; one might almost say a new language : for though he coined only a single word, which has never appeared in print, yet his expressions, being intended to convey new principles, were all new. This, though absolutely necessary, was extremely injurious to the extension of his doctrines. Men unaccustomed to such words as *interstitial* absorption, *adhesive* inflammation, *morbid* poison, and especially those who were more advanced in life, and could only hear them from their juniors, could scarcely fail of being disgusted at the thoughts of learning a new language. But the necessity of these terms is apparent by their gradual adoption. They are, in fact, only descriptions of what he discovered, and found it necessary to introduce, in order to preserve a due discrimination between things before his time confounded. I recollect well, more than twenty years ago, being asked by a very able physician and author, whether all poisons were not morbid ? and if so, to what purpose such a term should be added ? The answer is now ready — that, though the *effects* of all poisons are morbid or diseased, yet the poisons themselves are not so. The mineral poisons cannot be called morbid, though they prove morbid or mortiferous to man. Many of the animal poisons are so far from being morbid, that the animal, when in the highest health, secretes a poison the most morbid or mortiferous, as is well known in the bee, the viper, and many other of the venomous tribe. But the morbid poisons never exist, excepting in a diseased subject, or in what has been secreted by him. Thus no man in a state of health can give another the small-pox ; and whether the poison is conveyed

immediately by a diseased subject or not, it is always the production of disease, consequently a *morbid* poison.

No one, who is not aware of all the intricacies of a science, can duly appreciate the importance of this minute attention to words and their combinations. To others, many of the distinctions will appear unimportant; and for this reason, writers who only court popularity, will avoid every thing that obliges their readers to think too deeply. These are called plain writers; the general meaning of which seems, that they take care to tell no more than what is generally known, and to use none but current expressions.

I have already mentioned the difficulty a learned Judge found in comprehending Mr. Hunter's evidence, because he was too cautious to say more than he could maintain, and also because he saw a number of difficulties which never occurred to others. I recollect being present at his examination at the Old Bailey, on the affair between Major Cosmo Gordon and Captain Prescott. A Counsellor asked Mr. Hunter, if he did not at first sight consider the wound as mortal? "There was nothing (said Mr. Hunter) necessarily mortal in the wound, but the general effects on the whole system were sufficient to show that the patient could not live." The Counsel shewed great prudence in his subsequent question:—"You have no doubt, Sir, that the ball was the occasion of Captain Prescott's death."—*Ans.* "None whatever."

The following is a Copy of Mr. Hunter's Examination, on the trial of Captain Donellan, for the murder of Sir Theodosius Boughton.

*Extract from the Trial of JOHN DONELLAN, Esq.
for the wilful Murder of Sir THEODOSIUS ED-
WARD BOUGHTON, Bart.*

MR. JOHN HUNTER *sworn; Examined by*
MR. NEWNHAM.

Q. Have you heard the evidence that has been given by these gentlemen? **A.** I have been present the whole time.

Q. Did you hear Lady Boughton's evidence? **A.** I heard the whole.

Q. Did you attend to the symptoms her Ladyship described, as appearing upon Sir Theodosius Boughton, after the medicine was given him? **A.** I did.

Q. Can any certain inference, upon physical or chirurgical principles, be drawn from those symptoms, or from the appearances externally or internally of the body, to enable you, in your judgment, to decide that the death was occasioned by poison? **A.** I was in London then; a gentleman who is in Court waited upon me with a copy of the examination of Mr. Powell and Lady Boughton, and an account of the dissection, and the physical gentlemen's opinion upon that dissection.

Q. I don't wish you to go into that; I put my question in a general way? **A.** The whole appearances upon the dissection explain nothing but putrefaction.

Q. You have been long in the habit of dissecting human subjects? I presume you have dissected more than any man in Europe? **A.** I have dissected some thousands during these thirty-three years.

Q. Are those appearances you have heard described such, in your judgment, as are the result of putrefaction in dead subjects? **A.** Entirely.

Q. Are the symptoms that appeared after the medicine was given, such as necessarily conclude that the person had taken poison? **A.** Certainly not.

Q. If an apoplexy had come on, would not the symptoms have been nearly or somewhat similar? **A.** Very much the same.

Q. Have you ever known or heard of a young subject dying of an apoplectic or epileptic fit? **A.** Certainly; but with regard to the apoplexy, not so frequent: young subjects will perhaps die more frequently of epilepsies than old ones; children are dying every day from teething, which is a species of epilepsy arising from an irritation.

Q. Did you ever, in your practice, know an instance of laurel-water being given to a human subject? **A.** No, never.

Q. Is any certain analogy to be drawn from the effects of any given species of poison upon an animal of the brute creation, to that it may have upon a human subject? **A.** As far as my experience goes, which is not a very confined one, because I have poisoned some thousands of animals, they are very nearly the same; opium, for instance, will poison a dog similar to a man; arsenic will have very near the same effect upon a dog as it would have, I take for granted, upon a man. I know something of the effects of them, and I believe their operations will be nearly similar.

Q. Are there not many things which will kill animals almost instantaneously, that will have no detri-

mental or noxious effect upon a human subject; spirits, for instance, occur to me? *A.* I apprehend a great deal depends upon the mode of experiment; no man is fit to make one, but those who have made many, and paid considerable attention to all the circumstances that relate to experiments. It is a common experiment, which I believe seldom fails, and it is in the mouth of every body, that a little brandy will kill a cat: I have made the experiment, and have killed several cats, but it is a false experiment; in all those cases where it kills the cat, it kills the cat by getting into her lungs, not into her stomach, because, if you convey the same quantity of brandy, or three times as much, into the stomach, in such a way as the lungs shall not be affected, the cat will not die. Now in those experiments that are made by forcing an animal to drink, there are two operations going on; one is, a refusing the liquor by the animal, its kicking and working with its throat to refuse it; the other is, the forcing the liquor upon the animal: and there are very few operations of that kind, but some of the liquor gets into the lungs; I have known it from experience.

Q. If you had been called upon to dissect a body suspected to have died of poison, should you or not have thought it necessary to have pursued your search through the guts? *A.* Certainly.

Q. Do you not apprehend, that you would have been more likely to receive information from thence than any other part of the frame? *A.* That is the track of the poison, and I should certainly have followed that track through.

Q. You have heard of the froth issuing from Sir Theodosius's mouth a minute or two before he died; is that peculiar to a man dying of poison, or is it not very common in many other complaints? **A.** I fancy it is a general effect of people dying in what you may call health, in an apoplexy or epilepsy, in all sudden deaths, where the person was a moment before that in perfect health.

Q. Have you ever had an opportunity of seeing such appearances upon such subjects? **A.** Hundreds of times.

Q. Should you consider yourself bound, by such an appearance, to impute the death of the subject to poison? **A.** No, certainly not; I should rather suspect an apoplexy: and I wish in this case the head had been opened, to remove all doubts.

Q. If the head had been opened, do you apprehend all doubts would have been removed? **A.** It would have been still farther removed, because, although the body was putrid, so that one could not tell whether it was a recent inflammation, yet an apoplexy arises from an extravasation of blood in the brain, which would have laid in a coagulum. I apprehend, although the body was putrid, that would have been much more visible than the effect any poison could have had upon the stomach or intestines.

Q. Then, in your judgment, upon the appearances the gentlemen have described, no inference can be drawn from thence that Sir Theodosius Boughton died of poison? **A.** Certainly not; it does not give the least suspicion.

Mr.

**Mr. JOHN HUNTER, cross-examined by
Mr. HOWORTH.**

Q. Having heard the account to day, that Sir Theodosious Boughton, apparently in perfect health, had swallowed a draught which had produced the symptoms described, I ask you, whether any reasonable man can entertain a doubt that that draught, whatever it was, produced those appearances? **A.** I don't know well what answer to make to that question.

Q. Having heard the account given of the health of this young gentleman on that morning, previous to taking the draught, and the symptoms that were produced immediately upon taking the draught, I ask your opinion, as a man of judgment, whether you don't think that draught was the occasion of his death? **A.** With regard to his being in health, that explains nothing; we frequently, and indeed generally, see the healthiest people die suddenly, therefore I shall lay little stress upon that: as to the circumstances of the draught, I own they are suspicious; every man is just as good a judge as I am.

Court. You are to give your opinion upon the symptoms only, not upon any other evidence given.

Mr. Howorth. Upon the symptoms immediately produced, after the swallowing of that draught, I ask whether, in your judgment and opinion, that draught did not occasion his death? **A.** I can only say, that it is a circumstance in favour of such an opinion.

Court. That the draught was the occasion of his death? **A.** No; because the symptoms afterwards

are those of a man dying, who was in perfect health; a man dying of epilepsy or apoplexy, the symptoms would give one those general ideas.

Court. It is the general idea you are asked about now, from the symptoms which appeared upon Sir Theodosius Boughton immediately after he took the draught, followed by his death so very soon after; whether, upon that part of the case, you are of opinion, that the draught was the occasion of his death?

A. If I knew the draught was poison, I should say, most probably, that the symptoms arose from that: but, when I don't know that the draught was poison; when I consider that a number of other things might occasion his death, I cannot answer positively to it.

Court. You recollect the circumstance that was mentioned of a violent heaving in the stomach? *A.* All that is the effect of the voluntary action being lost, and nothing going on but the involuntary.

Mr. Howorth. Then you decline giving any opinion upon the subject? *A.* I don't form any opinion to myself; I cannot form an opinion, because I can conceive if he had taken a draught of poison, it arose from that: I can conceive it might arise from other causes.

Q. If you are not at all acquainted with the effects and operations of distilled laurel-water, whether the having swallowed a draught of that would not have produced the symptoms described? *A.* I should suppose it would: I can only say this of the experiments I have made of laurel-water upon animals, it has not been near so quick. I have injected laurel-water directly into the blood of dogs, and they have not died; I have thrown laurel-water, with a precaution,

into the stomach, and it never produced so quick an effect with me, as described by those gentlemen.

Q. But you admit that laurel water would have produced symptoms such as have been described?

A. I can conceive it might.

Mr. Newham. Would not an apoplexy or an epilepsy, if it had seized Sir Theodosius Boughton at this time, though he had taken no physic at all, have produced similar symptoms too? *A.* Certainly.

Q. Where a father has died of an apoplexy, is not that understood, in some measure, to be constitutional? *A.* There is no disease whatever, that becomes constitutional, but what can be given to a child. There is no disease which is acquired, that can be given to a child; but whatever is constitutional in the father, the father has a power of giving that to the children; by which means it becomes what is called hereditary. There is no such thing as an hereditary disease, but there is an hereditary disposition for a disease.

Mr. Howorth. Do you call apoplexy constitutional? *A.* We see most diseases are constitutional: the small-pox is constitutional, though it requires an immediate cause to produce the effects. The venereal disease is hereditary. I conceive apoplexy as much constitutional as any disease whatever.

A. Is apoplexy likely to attack a thin young man who had been in a course of taking cooling medicines before? *A.* Not so likely, surely, as another man; but I have, in my account of dissections, two young women dying of apoplexies.

Q. But in such an habit of body, particularly attended with the circumstance of having taken cooling

medicines, it was very unlikely to happen? *A.* I do not know the nature of medicines so well as to know that it would hinder an apoplexy taking effect.

Court. Give me your opinion in the best manner you can, one way or the other, whether, upon the whole of the symptoms described, the death proceeded from that medicine, or any other cause? *A.* I do not mean to equivocate; but, when I tell the sentiments of my own mind, what I feel at the time, I can give nothing decisive."

" Extract from Mr. JUSTICE BULLER's Charge.

" For the prisoner, you have had one gentleman called, who is likewise of the faculty, and a very able man. I can hardly say what his opinion is, for he does not seem to have formed any opinion at all of the matter. He, at first, said he could not form an opinion whether the death was, or was not, occasioned by the poison, because he could conceive that it might be ascribed to other causes. I wished, very much, to have got a direct answer from Mr. Hunter, if I could, what, upon the whole, was now the result of his attention and application to the subject, and what was his present opinion; but he says he can say nothing decisive. So that, upon this point, if you are to determine upon the evidence of the gentlemen who are skilled in the faculty only, you have the *very positive* opinion of four or five gentlemen of the faculty, that the deceased did die of poison. On the other side, you have what I really cannot myself call more than the *doubt* of another; for it is agreed by Mr. Hunter, that the lanrel-water would produce the symptoms which are described. He says, an epilepsey

or apoplexy would produce the same symptoms; but, as to an apoplexy, it is not likely to attack so young, and so thin a man as Sir Theodosius was; and, as to an epilepsy, the other witnesses tell you, they don't think the symptoms which have been spoken of, do shew, that Sir Theodosius had any epilepsy at the time."

It cannot be necessary to remark, that Mr. Hunter's caution arose entirely from his determination to give no opinion beyond his knowledge. The mode of dying, and the appearances after death, were all that he wished to speak to. On these he showed no indecision, convinced, from a practical knowledge, that they might arise from other causes besides poison.

We have seen, that when Mr. Hunter made a discovery, in which he had been anticipated by his contemporary, he readily relinquished his claim. In reviving the forgotten discoveries of the ancients, he might have supported his observation with all the triumph of remote antiquity and learned lore; for the coincidence of his remarks with those of the Greek physicians has been already noticed. I shall offer only a few other instances, which being contained only in his Lectures, are not accessible to every reader.

Whilst every Register of medicines was crowded with Cases of Lock-Jaw, and with successful modes of treatment, no one that I know of, between Celsus and Hunter, paid sufficient attention to one prognostic; yet, without attending to this, it is impossible

to ascertain what is due to the various and contradictory remedies, and what to the progress of the disease. Mr. Hunter, in his lectures, remarked, that if the spasm is confined to the neck, and the patient survives the 4th day, a favourable prognostic may be formed. That if it extends beyond the muscles of the neck, and the patient survives the 14th day, a favourable change usually commences at that time. Celsus remarks, "*Ea sæpe intra quantum diem tollunt: si hunc evaserunt sine periculo sunt.*"* In this he is less guided by the Greek physicians than usual, probably trusting to his own observation in Rome, where the disease might be less frequent than in the more southern part of the Mediterranean. He is, however, I believe, perfectly correct where the spasm is confined to the neck. Where it extends further, Mr. Hunter is supported by Hippocrates in the prognosis, though the latter protracts the critical days.† From the ancient authors, it would be in vain to expect an account of the immediate cause of death, because in their time morbid anatomy was so little cultivated. Mr. Hunter has supplied this desideratum; and his observation, twenty years after his death, has been confirmed by a writer,‡ unacquainted with him or his opinions on this subject.

The following is an instance not less to the point:

Dr. Baillie, with equal modesty and a sense of justice, has the following note in all, excepting the first edition, of his "*Morbid Anatomy.*"

* Lib. IV. cap. iii. line 5, page 42, ed. Almaloven.

† Hippocr. sect. v. p. 125, ed. Foesii.

‡ By the spasm extending to the heart. See a valuable paper by Mr. Howship, Lond. Med. Journal, vol. xxii. page 188.

" This diseased change I formerly confounded with the scirrhus enlargement of the uterus, considering them as varieties of the same disease, and therefore blending their description together; but, in consequence of the accurate observations of Dr. Adams, in his "*Treatise on Morbid Poisons*," I have thought it proper to separate them.—*Morbid Anatomy, Second Edition; Article, Ulcer of the Uterus.*

Though Dr. Baillie has honoured me so far as to give me credit for the above observation, it becomes me to acknowledge the source from which I derived it; and it is with no small satisfaction I have since seen the same sentiment expressed by Aretæus, with scarcely any difference but the language of the two,* so that had Mr. Hunter understood Greek, he might have been accused of plagiarism; an accusation which cannot be brought against any scholar who has written on Cancer.

The two diseases above referred to may, with much greater propriety, be called the opprobria chirurgorum than the gout opprobrium medicorum. Not to be able to cure a disease may be pardonable; but nothing can excuse the slightest inattention to its phenomena, particularly to those characters by which it is to be distinguished. It is but justice to the rising generation, to admit a progressive improvement in all these nicer distinctions; and if many of them are not yet aware of the sources from which they derive such advantages, Mr. Hunter, in this respect, only shares the fate of most others who have improved science. He may indeed be considered more fortunate than his predecessors, inasmuch as what was

* Aretæus de Caus. Morb. Diuturn. lib. ii. chap. 12.

entirely overlooked in them is slowly attracting notice when repeated by him.

Happy had it been for the four last centuries if another passage in Celsus had been earlier attended to. Is Mr. Hunter again to be accused of plagiarism from the ancients, because he almost translates a whole chapter, which, though intimately connected with the most learned and widely-expanded controversy in medicine, has been in its application overlooked by all the learned? The medical reader will at once refer this to the chapter in Celsus, *De obscurarum partium vitis*, in which we meet with an accurate description of every kind of ulcer on those parts first distinguished by Mr. Hunter from the truly syphilitic. How gladly would he have availed himself of such an authority we may easily conceive, by the reference he makes to so many modern writers.

What has been just remarked, is not to be considered as a mere critical inquiry. The suggestion of Mr. Hunter gave rise to the first attempt at distinguishing the various diseases at one time indiscriminately confounded under the term Cancer; and it is now frequently remarked, that, by reviving one opinion from Aretæus, he has saved many a saint from an operation, and, by reviving another from Celsus, many a sinner from repeated salivations.

In considering the above, we cannot but admit that medicine is less progressive than most other sciences. It may be urged, indeed, that important facts, though noticed by the ancients, are mixed with fables, and preserved in a language little cultivated by those who are most engaged in practice. The obvious inference is, that our records should be confined

to well ascertained facts, and that those facts should always be kept in view. On this account, I have often felt surprised, that Sir Everard Home should regret the caution; or, as he calls it, the tardiness of Mr. Hunter, in giving his observations to the public. "But (continues the same writer) such was his turn for investigation, and so extensive the scale upon which he instituted his inquiries, that he always found something more to be accomplished, and was unwilling to publish any thing which appeared to himself unfinished. His Observations on the Muscular Action of the Blood-vessels were laid before the Royal Society in 1780, and yet he delayed publishing them till his Observations on the Blood and Inflammation were arranged; and they will be found to make a part of the present work."

After these remarks, we may still hope to see some valuable fragments at least, from so desirable a source. Whenever they appear, it is much to be wished that they may be in the author's own words, however unconnected they may seem. The 84th vol. of the Philosophical Transactions, published a year after his death, contains, "Facts relative to Mr. Hunter's preparation for the Croonian lecture, by Everard Home, Esq." In the subsequent part of the same volume, the fallacy of these "Facts" is shown by the person who brought them forward. New "Facts" are introduced, confirmed by experiments, illustrated by plates, witnessed by Mr. Ramsay; and among these facts, we are informed, that the eye loses none of its adjusting powers by a deprivation of the lens. In the succeeding volume, these "experiments" are shown to be uncertain. All this may

evince candour, and may be considered as a tribute to the memory of the deceased, by thus bringing his successor into notice. But we cannot, in the midst of it, fail to applaud the prudence of Mr. Hunter, who, whatever his opinions were, knew better than to consider them as "Facts," or to offer them in their crude state to the public.

Since the days of Bacon, we have learned to be satisfied with nothing less than facts. Hence, an experiment is often considered as necessary in the support of every theory; and we are apt to suppose, that every experiment is worth being recorded. Men accustomed only to the changes which they detect in common matter, are seldom aware of the intricacy of experiments, when made on living matter. The bare making them on living animals induces a new train of actions, or the cessation of certain actions, which the inexperienced operator is apt to confound with the result of his inquiry. Another maxim should be always kept in view, that when a fact is once proved, all experiments to confirm it are unnecessary.

I was led to these considerations by Mr. Brodie's paper, in the *Philosophical Transactions*, "respecting the influence of the brain on the actions of the heart, and on the generation of animal heat."

"In making experiments (says this gentleman) on animals, to ascertain how far the influence of the brain is necessary to the action of the heart, I found, that when an animal was pithed by dividing the spinal marrow in the upper part of the neck, respiration was immediately destroyed; but the heart still continued to contract circulating dark-coloured blood, and that in some instances, from ten to fifteen mi-

minutes elapsed before its action had entirely ceased. I further found, that when the head was removed, the divided blood-vessels being secured by a ligature, the circulation still continued, apparently unaffected by the entire separation of the brain. These experiments confirmed the observations of Mr. Cruikshank and M. Bichat, that the brain is not directly necessary to the action of the heart; and that when the functions of the brain are destroyed, the circulation ceases only in consequence of the suspension of respiration. This led me to conclude, that, if respiration was produced artificially, the heart would continue to contract for a still longer period of time after the removal of the brain. The truth of this conclusion was ascertained by the following experiments."

Eight or nine experiments follow, made on living animals; the result of which is, that by keeping up artificial breathing, after the heart is deprived of all connection with the brain, the circulation may still be continued; but the secretions and animal heat no longer continue. From this, Mr. Brodie concludes, that the action of the heart is independent of the brain; that animal heat does not depend on the circulation, but on the nervous system; and that the secretions cease when deprived of the nervous influence.

Respecting the first, (that the brain is not directly necessary to the action of the heart) though only Cruikshank and Bichat are mentioned, yet Mr. Brodie's experiment in proof of it, was only a repetition of Mr. Hunter's,* and by probably the same instrument.—"I invented (says Mr. Hunter) a double pair

* "The heart's motion does not arise from an immediate impulse from the brain." Treat. p. 143.

of bellows, constructed in such a manner as, by one action, to throw fresh air into the lungs; and, by another, to *suck out again* the air which had been thrown in by the former, without mixing them.*—A small tube (says Mr. Brodie) of *elastic gum* was so connected to a pair of bellows, that the lungs might be inflated and allowed to empty themselves." By these contrivances, whether the same or not, each proved the same thing, and no more; namely, that the action of the heart seems sympathetic with respiration. Both continued their experiments about the same time. Mr. Brodie observed further, that, "in such a state of things the secretions were discontinued and the generation of heat also."

Did it prove, then, that heat is independent of the circulation; because, under such a circulation, and thus mutilated, the animal grew colder? or, did it prove that the brain and nerves were alone necessary for the generation of heat; because, when the head was separated, no heat was generated? I mean not by this to undervalue Mr. Brodie's talents. I have no doubt that, at this time, he would gladly recall his papers. But I cannot help urging any future young experimenter, that he should learn what such men as Mr. Hunter have done on the subject of their inquiries, and also recollect his remark on the necessity of frequent experiments before we trust to the result of any. Had Mr. Brodie done this, he would have found, that though Mr. Hunter had anticipated his experiment, he was too prudent to form such hasty conclusions. To show that animal heat is not

* Treatise on Blood, p. 152. Animal Economy, second edition, page 134.

entirely dependent on circulation, he took the opportunity of an apoplectic subject, whose external heat was preserved by the bed-clothes, and whose pulse was regular; yet, even here, he found the heat vary. This might have led him to suppose, that animal heat depends on the brain, as that organ was oppressed; but numberless arguments occurred to convince him of the contrary; and he concludes by observing, that animal heat, like the secretions, depends on the powers of the whole system; and that, in proportion as they are more perfect, the standard heat will be more perfectly preserved.*

* *Anim. Economy*, p. 103 and 104. It is worth while to observe how nearly this language coincides with Celsus—*Neque enim natura sanguinis est ut calet, sed ex his quæ in homine sunt, is vel calecit vel frigescit, lib. iv. cap. 3.*—Since writing the above, the second edition of Blumenbach's *Physiology* has reached me; in which I see he makes no scruple to give the old doctrine of the chemical production of animal heat. This I should not have attended to but for a note which revived the recollection of one of my own remarks more than twenty years ago.

Blumenbach's note is as follows:—"Hence the constant coldness of those wretched beings who labour under the blue disease, which arises from a mal-conformation of the heart. Sometimes the septa of the heart are imperfect, sometimes the aorta arises from the right ventricle, as in the tortoise. Among innumerable instances of this lamentable disease, suffice it to quote John Abernethy's *Surgical and Physiological Essays*, part ii. p. 158; and Fr. Tredman's *Zoology*, t. i. page 177."

This Tract of Mr. Abernethy is now out of print, and, I believe, very scarce; I shall therefore transcribe the case, on account of the length of time which the child lived under a malformation, I believe, greater than in any subject attain-

I have shown, that, without reading them, 'Mr. Hunter discovered what was recorded by the an-

ing the same age. The previous history also, from the hour of birth, is better ascertained than in many other cases; and it furnishes a proof, that though heat may not entirely depend on respiration, yet it is with difficulty maintained to its standard, where the passage of the blood through the lungs is very defective. The following is the extract from Mr. Abernethy:

" Mr. Adams requested me to assist him in opening the body of a child, who died at a little more than two years of age, and of the state of whose health, whilst he lived, Mr. Adams has given me the following account:

' The first paroxysms of irregular respiration were observed about a fortnight after birth. They were, however, neither violent in degree, nor long in duration. For some time after, they were periodically every third day, and for the last twelve months of the child's life usually once a day. The following were the symptoms: The skin, which from his earliest infancy had been remarked to have a darker tinge than common, became unusually blue. A coldness, which was so habitual as to induce his parents always to clothe him in flannel, was much increased. The child seemed to suffer much uneasiness about his chest, and shewed a wish to be laid with his face downward; if this were not immediately complied with, he contrived to turn himself to that posture. He then gradually, and with apparent pain and exertion, expelled air from his chest; remaining without inspiration for a much longer period than an adult could, without suffocation. After this, suddenly inspiring, he immediately expelled the air as at first: this exertion was attended with a kind of scream. In this manner he continued respiring with immoderate long intervals, for near a quarter of an hour: after which he breathed naturally, but always quickly; and thus usually the paroxysm subsided. But sometimes the symptoms have been renewed, after a few minutes of ordinary respiration, and a succession of paroxysms has continued through the day.

cients. I shall now proceed to show that, without consulting Bacon, he conducted his inquiries pre-

‘ Though the child was inattentive to surrounding objects, from the moment he was seized till his recovery; yet this seemed rather the effect of his sufferings than a privation of intellect. When long without a fit, he was observed not to be so well either in health or spirits. If the paroxysm was very severe, the colour of his skin was proportionably livid, and, after it was over, mended in proportion: his lips, which at other times were blue, acquired a reddish tint, which lasted for an hour or two. His pulse, always regular, but extremely feeble and quick, was sometimes so obscure as to be felt with difficulty.

‘ For the three days preceding the child’s death he had no fit; but on the fourth morning his respiration was again irregular, though not exactly in the usual manner. Respiration was performed at shorter intervals, and with less exertion, than was common; but the skin became pale, and the powers by which the circulation of the blood is performed gradually ceased to act.’

“ The length of the body was rather less than that of a healthy child of the same age; it was slender, but very well formed: the muscles were moderately large and firm; there was no deficiency of fat; neither disease, nor peculiarity of formation, were observed in any other part of the body, except the thorax. The lungs were healthy, but the structure of the heart was uncommon. The right auricle of the heart, being first laid open, was found to be much larger than usual; and the foramen ovale was perfectly open. The cavity of the right ventricle was next exposed; it was of uncommon size, and its sides resembled those of the left ventricle, in bulk and apparent strength. From this ventricle a large vessel proceeded, in the usual course of the pulmonary artery; I laid it open to some extent, but it proved to be the aorta. From its origin in the ventricle, it extended in an arched form towards the left side; then passed behind the

cisely in the manner proposed by that great writer, and that to this he owed all his discoveries. The error of most of us, as Bacon observes, is, that we are satisfied with a few facts, provided they are sufficient to form a syllogism, and that we overlook objections. This is well exemplified in the above instances.

Another great error we are apt to fall into is, that we conceive it necessary to explain the powers by which the operations of nature are effected; an instance of which will be found in Sir Everard Home's paper on the Formation of Fat. No one is so frequently guilty of it as Baron Haller; and to this we must impute the superiority of Mr. Hunter in his early life, over that illustrious physiologist in the height of his glory. Haller, like our Darwin,

lungs, and pursued its usual course. The aorta was more capacious than is common; it gave off the coronary, carotid, and subclavian arteries, in the usual manner. The communication between the ventricle and this artery was large and direct, and it appeared that it allowed an easy passage to the blood, on the contraction of the ventricle. The pulmonary artery also arose from the right ventricle, but the communicating orifice was small, and the artery was one-third less than its usual size: its sides were uncommonly thin, resembling those of a vein. In the engraving, the aorta is expanded, and inclined to the right side; but before its displacement, it was turned towards the left, going before the pulmonary artery, and concealing that vessel. The blood was returned from the lungs, in the usual manner, by four pulmonary veins, to the left auricle. The dimensions of the left auricle and ventricle were smaller than common: they were certainly one-third less than the corresponding cavities of the right side of the heart. No artery proceeded from the left ventricle, but there was an opening in the upper part of the septum ventriculorum, by which the blood could be projected into the aorta."—*Surg. & Physiolog. Essays*, p. 158.—1796.

was a poet as well as philosopher ; and all his physiology is a compound of philosophy and poetry. His chapter, " Conceptio," gives him the fairest opportunity of indulging his poetical taste, and exhibiting the elegance of his Latinity. Speaking of the changes which take place on birth, he says, "*Ductus venosus negligitur et coit ob compressionem, quam diaphragma in inspiratione descendens, novam hepati adfert.*" After much more of the same kind, he concludes, "*Ex similibus causis sensim hepar minuitur, et recipit se sub costas ; & crassa intestina ex gracilitate, quæ in fetu est, in magnam diametrum intumescunt ; & ventriculus in longitudinem extenditur ; & cæcum intestinum nascitur, a fæce ad dextra adpendiculæ pondere suo deorsum nitente ; & pedes insigniter augentur, a sanguine a ligatis umbilicalibus arteriis repulso ; & reliquæ mutationes fiunt, quibus mediis fetus in naturam perfecti hominis sensim migrat.*"

Primæ Lineæ, DCCCCLII.

On reading these passages, I never could divest myself of the recollection of Ovid's *Metamorphoses* ; and am persuaded, that if one would take the trouble of putting Haller's Latin into hexameter verse, it would be difficult to discover the difference between the philosopher and the poet. The latter, indeed, as a poet, has the most merit, as with him the whole is fiction ; whilst the former has the subject before him, and is only obliged to give it a poetical dress. Not that Haller is the only writer who describes the phenomena of nature in poetical language. A noble poet calls the fall of the dew,

" Those tears of the Grass for the loss of the Sun ;"
an expression quite as philosophical, and still more

beautiful, than either Haller or Darwin. In nothing was the first of these writers so led astray by his poetical fancy, as in his inquiry into the *iter testium*. By hastily imputing it to their increased weight and respiration, he stopped short in his investigation, and gave an erroneous account of the whole. Even when taught by Mr. Hunter the impossibility of such a cause, his poetical fancy immediately furnishes him with another not less unphilosophical.

“Multum pressio potest: ei tribuas testium in scrotum descensum, postquam musculis abdominis vis irritabilis accessit: ei cordis in pectus repulsionem, quando velamenta pectoris majora sunt: ei longius pectus, brevius abdomen & minora ejus viscera, quando aer in pulmonem receptus pectus dilatavit. Sed etiam ossa a musculorum, a vasorum, a mollissimi cerebri pressione varie exsculpuntur: & *caro in tendinem vertitur*.”—*Primæ Lin.* DCCCCXII.

With such facility is one of the most surprising phenomena in the whole mysterious process of conception accounted for, but unfortunately by a *cause* which would be absolutely destructive of the effect.

With how much dignity does Mr. Hunter appear, when, as if following the rules of Bacon, he considers that his only business is to trace the individual bodies and their pure individual actions, according to the law impressed upon them. This was the whole object of his inquiry; with this, when discovered, he was satisfied; and this only he attempted to explain.*

* Licet enim in natura nihil vere existat præter individua corpora egentia actus puros individuos EX LEGE in doctrina tamen illa ipsa lex ejusque inquisitio et inventio, atque explicatio est pro fundamento tam ad sciendum quam ad operandum.—BACON, Nov. Organ.

When he felt himself perfectly master of this law, he was enabled to show the consequence of certain irregularities which sometimes occur in this as in other processes of nature.

It is not surprising that the simplicity of Mr. Hunter's descriptions, and the accurate engravings with which they are illustrated, should with difficulty be comprehended by the common reader. The phenomena are not only different from any thing we meet with in inanimate matter, but also from any thing else we meet with in the structure of the human, or of any other animal. That a part should be originally formed contiguous to the kidneys, and removed from thence into the scrotum; that its passage should be between the convolutions of the intestines, pressed as close as we find them during utero-gestation; that in its whole course it should be attached, by newly-formed fibres, to every organ with which it comes in contact; that these attachments should be absorbed, and new ones formed to the different organs, or different parts of the same organ, till it reaches an opening in the groin expanding to receive it, and a pouch prepared for it by the elongation of a membrane which lines the internal cavity; that immediately on passing that opening, it should find its way into the scrotum in the form it is to assume for life; and that the opening should instantly close: that all this should be accomplished in utero has, ever since its discovery, been expressed as a matter of surprise by every physiologist excepting the inventor. No doubt he viewed it with surprise, but probably not with more than he did every other operation of Nature, all which he considered as standing miracles, evincing a first incom-

prehensible and all-powerful cause. The chain of events is certainly different from the ordinary occurrences of digestion, secretion, and muscular motion. So also is the first formation of the beard, and other changes which take place in each sex at different ages; and whoever attempts to assign the powers and the causes of the *inter testium*, should first make his inquiries into the powers and causes of the first starting and gradual increase of the beard; a phenomenon, in the tracing of which he will have great advantages, inasmuch as the effect is produced at an age which admits of closer inquiries. Yet there are men who express their surprise at, and others who attempt to account for this process.

“Repeated observation (says Blumenbach) demonstrates this to be the true course of the testicles. To assign the powers and causes of its accomplishment is no easy matter. For I am every day more convinced, that neither of the powers to which it is usually ascribed, viz. the action of the cremaster or diaphragm, or the mere contractility of the cellular membrane interwoven with tendinous fibres, which adheres to the cylindrical process of peritonæum, and is called the Hunterian *gubernaculum*, is sufficient to explain so singular a movement, and least of all to explain the transit of the testis through the passage so often mentioned: but that the whole affords, if any thing does, a striking illustration of a *vita propria*, without the peculiar influence of which, so remarkable and unique a course, similar to no other function of the system, cannot even be scarcely imagined.”

May we not ask this physiologist, even admitting that any of the abovementioned powers were a suffi-

cient cause; would it lessen the wonder? and, is not every action we can trace in a living body an illustration of a *vita propria*, if that term has any meaning? But his Translator has fewer difficulties.

“The descent of the testes into the scrotum must, I apprehend, arise from the growth of their nerves and vessels, and the direction afforded by the contraction of the gubernaculum; the growth of the former, and therefore the whole process, is accounted for in the minds of some by the contraction of the latter.”

It is but justice to remark, that this gentleman attaches to his opinion a copy of Mr. Hunter's description. In perusing which, the reader will perceive that the discoverer of this ligament is too cautious to say more of it than that “it connects the testis with the scrotum, and *seems* to direct its course through the rings of the abdominal muscles.” This language can imply no more than that such a suggestion will give the reader a more exact idea of the form and situation of the parts.

When we consider that Mr. Hunter made this discovery so early in his anatomical career; that he completed it at once in such a manner that nothing has since been added to it; we could almost fancy we see him instructed by the illustrious philosopher, whose name was probably all that he knew. In constituendo autem axiomate, forma *inductionis* alia, quam adhuc in usu fuit excogitanda est; eaque non ad principia tantum (quæ vocant) probanda et invenienda, sed etiam ad axiomata minora, et media, denique OMNIA.*

* Nov. Organ. L. 1, Aphor. 105.

I shall now offer a few remarks concerning the paper "on Digestion."—It is with pleasure I have discovered, since the former part of this work was printed, that the animadversions on the Italian philosopher are much softened in the second edition of "Observations on various Parts of the Animal Œconomy." The character of Spallanzani is, however, in both, so extremely appropriate, and affords so useful a lesson to other experimenters, that I cannot refrain from transcribing the passage.

"It must be owned (says Mr. Hunter) that his experiments, as far as they go, are in themselves conclusive; but, like all mere experiment-makers, he is not satisfied even with those which are clear and decisive, but multiplies them most unnecessarily, without varying them to elucidate other and essential parts of the same subject. I think we may set it down as an axiom, that experiments should not be often repeated, which tend merely to establish a principle already known and admitted; but that the next step should be, the application of that principle to useful purposes. If Spallanzani had employed half his time in this way, and had considered digestion under all the various states of the body and stomach, with all the varieties of food, both natural and artificial, he had employed his time much better than in making experiments without end.

"The food of animals in general being composed either of vegetables, animals, or both, and a solvent admitted as an agent in digestion; it only remained to prove, that the effect of the process of digestion was to produce from these various substances an animal matter, similar in all animals who live on such sub-

stances. But the application of principles requires more than simply the knowledge of the principle itself; and therefore, those who cannot reason from analogy, or draw general conclusions from a few convincing facts, and who require to have every relative conclusion or inference proved by an experiment, must be pleased with Spallanzani; but he must tire even those whom he informs, and much more those who read his works in expectation of something new.'

With the utmost candour, Spallanzani has credit for all that he discovered; at the same time, with a plainness which carries conviction, the fallacy of many conclusions drawn from the most faithfully related experiments, is clearly pointed out.

"In considering the strength of the gizzard, and its probable effects when compared with the human stomach, it must appear that the gizzard is, in itself, very fit for trituration; we are not, however, to conclude that stones are entirely useless; for if we compare the strength of the muscles of the jaws of animals who masticate their food, with those of birds who do not, we shall say that the parts are well calculated for the purpose of mastication; yet we are not from thence to infer that the teeth in such jaws are useless, even although we have proof that the gums do the business when the teeth are gone. If stones are of use, which we may reasonably conclude they are, birds have an advantage over animals having teeth, so far as stones are always to be found, while the teeth are not renewed. Spallanzani concludes, 'That we have at length a decision of the famous question concerning the use of these pebbles, so long agitated by authors; it appearing that they are not

at all necessary for the trituration of the firmest food, &c.;' but says, 'He will, however, not deny that when put in motion by the gastric muscles, they are capable of producing some effects on the contents of the stomach.' Now if we constantly find in an organ substances which can only be subservient to the functions of that organ, should we deny them to be of any use, because the part can, to a certain degree, do its office without them?

"To account for pebbles being found in the gizzard, Spallanzani supposes the birds to have picked them up by chance, or not to have distinguished between their food and these stones. But it appears singular, that only those which have gizzards should be so stupid; and he owns, that Redi and himself found that birds died of hunger, yet without having picked up more stones than usual; which, we might suppose they would have done if they had not had a choice, or could not have distinguished stones from the grain on which they feed.

"The stones assist in breaking the grain, and by separating its parts in the beginning of the process, and afterwards by rubbing off the surface already digested, allow the gastric juice to come more completely in contact with the whole."*

* However unnecessary it may seem, I cannot help, on this occasion, relating two instances, evincing the choice of these birds in the selection of food and gravel. In my first sea voyage, I remarked to the Captain, that the poultry had no gravel. He assured me, that this was owing to the negligence of the steward, as gravel made regularly a part of the sea store. The steward was instantly ordered to furnish it; and it is hardly credible with what greediness the poultry de-

In every part of this controversy, Mr. Hunter evinces a strength of mind which distinguishes the physiologist from the experiment-maker, and wherever he meets his adversary, shows his immense superiority. Still a difficulty remained, which both parties saw, but which the Italian was unable to place

voured it all, leaving a considerable quantity of grain in their troughs. To show how much birds with gizzards must suffer from want of stones, I shall relate a most interesting little event, from a gentleman formerly in the service of George the Second, and who resided for some time at Lisbon. A friend of his lost a stone shirt sleeve button, which he suspected his Portuguese servant of stealing. The boy not only denied it, but became extremely sulky, as it was conceived, at the suspicion. In the gentleman's dressing-room, a favourite little bird was allowed the free space of the apartment, retiring at his choice to his cage. This bird sickened and died, and so impressed was its owner that it had been poisoned through the malice of his servant, that he requested its examination by a medical friend. To the astonishment of all, the sleeve button was found in the gizzard; the strength of which had pressed the metal close, but could not break the stones, whose size was probably inconsistent with the functions of the stomach. On inquiry, I learned, that no attention had been paid to supplying this bird with gravel.

My friend, Mr. Banger, brought me some husks of wheat to show with how much accuracy the weasel had eaten all their contents without altering their original form. Nothing but their want of weight, to us betrayed their hollowness. The interview was at a window overlooking the poultry-yard, into which, after a satisfactory examination, the husks were thrown. The birds all ran, expecting to pick up something from the customary source; but, to my astonishment, on a near approach, contented themselves with a close examination, without picking up any of the husks.

in a perspicuous view, and which Mr. Hunter never solved. That the gastric juice is the only digestive power in the stomach was allowed by both, and that it digests animal food as well as vegetable matter. The only difficulty was, how the stomach could protect itself against such a fluid formed in its own substance. At length Mr. Hunter discovered, that the juice had no power over living animal matter, so that when the stomach is dead, it may be digested like other dead animal matter. This induced both of them to kill animals in such a way as to produce a digestion of the stomach. Both proved the probability of such a fact, which neither of them could satisfactorily demonstrate. When we look over Mr. Hunter's papers, and see how nearly he discovered the whole arcanum, and still more, when we reflect that nothing was wanted but the application of his former remarks and the language in which they are conveyed, we feel surprised at his difficulties, and not less pleased at his caution; for though he could effectually silence his adversary, yet he acknowledged, in several parts of his paper, particularly in the introductory paragraphs, that the discovery was incomplete. "I shall conclude (says he) by adding a copy of the above-mentioned paper (on the Digestion of the Stomach after Death), with the hope that others will take up the subject in a more enlarged point of view, and prosecute an inquiry which is of so much consequence in the investigation of the operations of the animal œconomy."

In order to prove this fact experimentally, two things only are required: First, to induce the secretion of gastric juice. For this nothing more is ne-

necessary than to feed an hungry animal. — The next thing is, to kill him in such a manner that the stomach shall be dead before all the secreted juice is expended in digesting the food. In the ordinary mode of death in the human subject this rarely happens, because under disease little or no food is taken or wanted; gastric juice is therefore secreted in the same proportion, and the stomach, if at all, will be only slightly and superficially digested. The instances in which the human stomach has been found completely digested, have been in men whose death has happened soon after eating heartily, and the food has been found loose in the abdomen, or lodged on the neighbouring viscera, which have been in part digested also. But why does not this oftener happen? and why do we not constantly see it in animals who are killed for our use? The answer is plain; because, though apparent death has taken place, or been inflicted, yet the individual parts retain life. Spallanzani, after killing his animal, found that food forced into the stomach was not only digested, but even in part passed into the duodenum. On this Mr. Hunter very fairly remarks, that such a stomach not being dead, could not be digestible. How naturally it seems to follow, if a man, immediately after eating, should be seized with some violent affection of the mind, during which he should die; that in such a state, absolute universal death would be likely to follow, and the stomach being now dead, and containing gastric juice on its surface, and even within its substance, would be sooner affected than its contents. Accordingly we find, that the two first instances which occurred to Mr. Hunter were in men

whose skulls were fractured, one by a poker, probably both, in an affray.

I have already remarked, this is the only instance in which Mr. Hunter was unable to retain his ground in a discovery, as far as it went, entirely his own. The reason is assigned by himself; but it is impossible not express a wish, that such a mind had been entirely devoted to those branches of physiology, which more immediately assist our inquiries into pathology. In the above paper, too little distinction is made between the condition from which we are to expect the slight superficial digestion of the interior coat of the *empty* stomach, and the events which are necessary to induce a complete digestion through its whole substance, so as to suffer its *contents* to fall into the abdomen. It is probably for this reason that so important a phenomenon is still imperfectly understood, and that a writer describes oxalic acid as a *corrosive* poison, because he found a stomach digested in a person poisoned by that substance. This caution cannot be too often repeated, on account of the influence it may have on forensic medicine; (see a paper by Mr. Want, in the London Medical Journal, vol. xxii. page 327.) Some experiments have lately been made to prove the effect of nervous and Galvanic influence on digestion. On these I had begun some remarks, but found it impossible to pursue them with the gravity hitherto maintained. I shall therefore leave them to those who understand them better than closer reasoning.

If Mr. Hunter has left this single point obscure, from not having completed the discovery, he has at least been careful not to draw inferences beyond his facts; and to me it appears the only obscure passage,

in all his writings and doctrines. Yet it has been said, by candid and enlightened men, that his grand discoveries are lost by his manner of relating them: a striking proof how much better we are pleased with figurative expressions than abstract reasoning. How few are there that object to Haller's mode of writing! yet it may be truly said, that he worked like a philosopher, and sang like a bard. Those who conceive the rudiments of a science are to be acquired without application, must consider Mr. Hunter an obscure writer; and until they divest themselves of every thing unconnected with life, they never will understand him.

Like every teacher who is master of his subject, he begins with the most simple forms appertaining to his science. So far from resorting to the organic molecules of the French philosopher, he conceives, that life may exist without organization, or without any that can be discovered. This he illustrates by the property of the unimpregnated part of an egg, which has a power of self-preservation: that such power arises from life, he proves by killing it; after which it becomes putrid, as soon as any other animal substance, exposed to the same degree of heat. This leads him to the vitality of the blood, a proposition we should conceive hardly doubtful, nor ever questioned, till Mr. Hunter saw the necessity of closely watching all its actions; demonstrating that they exist only during life: and that in every healthy process they are directed to purposes the most important for the growth and preservation of the animal. This fluid, like the solid parts of the living body, being only affected by stimuli and

sympathy, the effects of each in every part, and under every condition of health and disease, are traced with the minutest accuracy. This leads to the subject of inflammation, the foundation of all pathology. Happily, all this, with the various accidents under which it occurs, as applicable to the pathology of surgery, is given to the world in his own language; and if it requires patience and application to understand it, this only proves that, after anatomy, it should make the early part of medical study, as Euclid and Locke are of a more general education.

His lectures were much more comprehensive, containing the whole of Practical Surgery, with as much of Physiology as was necessary for comprehending the science, and connecting it with the rules of the art. Symptoms and prognosis were minutely dwelt upon, and sympathy in all its varieties. After the consideration of every local disease or accident, the various provisions made for restoration, and the consequence when these prove insufficient, with the means of relief by art, were pointed out by the relation of cases, the demonstration of preparations, and the fairest inductions from the established laws of economy. Having traced local diseases in all the variously-formed parts, from the generally fluid blood to soft but solid parts, and to the bones; their effects on the whole system was next described. To these succeeded diseases which, from certain peculiarities, were called specific, particularly those confounded under the general term of cancer, the morbid poisons, and diseases of the skin. It should be remembered, that in all his lectures, he never professed to introduce comparative anatomy, excepting to illustrate some disease in the human subject.

The following is a List of Mr. Hunter's Publications, in the order and form in which they appeared :

- 1772. On Digestion of the Stomach after Death.
- 1773. Observations on the Torpedo.
- 1774. Of certain Receptacles of Air in Birds.
- 1774. On the Gillaroo Trout.
- 1775. On the Gymnötus.
- 1775. Experiments on Animals and Vegetables, with respect to their Power of producing Heat.
- 1776. Proposals for the Recovery of People apparently drowned.
- 1777. Of the Heat of Animals and Vegetables.

The above are all contained in the different volumes of the Philosophical Transactions.

In 1778, he published his second part of the Natural History of the Teeth. The first had been published some years before. They are, however, included under one title, and dated 1778.

- 1779. Account of the Free Martin.
- 1780. Account of a Woman who had the Small-Pox during Pregnancy.
- 1780. Account of an extraordinary Pheasant.
- 1782. Account of the Organ of Hearing in Fishes.
- 1785. Anatomical Remarks on a new Marine Animal.
- 1787. An Experiment to determine the Effect of extirpating one Ovarium upon the Number of Young produced.
- 1787. Observations tending to show that the Wolf, Jackall, and Dog, are of the same species.
- 1787. Observations on the Structure and Economy of Whales.
- 1789. Supplimentary Letter on the Identity of the Species of the Dog, Wolf, and Jackall.
- 1792. Observations on Bees.
- Six Krohnian Lectures on Muscular Motion, from 1776 to 1782.

These make the remainder of his papers in the Transactions.

The following are only to be found in his "Observations on certain Parts of the Animal Economy."

Observations on the Glands situated between the Rectum and Bladder, called Vesiculæ Seminales.

Of the Structure of the Placenta.

Some Observations on Digestion.

On a Secretion in the Crop of breeding Pigeons for the Nourishment of their Young.

On the Colour of the Pigmentum of the Eye in different Animals.

The Use of the Oblique Muscles.

A Description of the Nerves which supply the Organ of Smelling.

In 1786, he published his grand practical work, the Treatise on the Venereal Disease; and in 1793, "Observations on the Inflammation of the internal Coats of Veins," in a volume of Transactions of a Society for the Encouragement of Medical and Chirurgical Knowledge.

Most of the above papers, which concern pathology, have been already noticed. I cannot, however, pass over the "account of the woman who had small-pox during pregnancy." The minuteness with which every important part of the case is related, the dates, and the appearance of all the pustules, mark the accuracy of the writer. But most of all, the sign or character of the disease, never noticed but by him, is particularly remarkable, as his rules, and *his* only, so nearly approximate the instructions contained in the Levitical law, and *there* only, for the discerning of a morbid poison.

His book on the Venereal Disease is only deficient in perspicuity, which, as I have before remarked, may be imputed to his great anxiety that it should be com-

plete. Before it was sent to the press, he often declared, that no future edition should render the first useless. His name produced an immediate sale; but, on account of the obscurity universally complained of, the second edition lingered for thirteen years. In this edition, he new-modelled a passage, the perversion of which had given his enemies a great advantage. Most unfortunately, Sir Everard Home, in giving a third edition, has copied from the first, subjoining a note, in which he adds his own censure to the passage expunged by the author, and restored by himself. This, if there were no other, is a sufficient apology for me in republishing the second edition with explanatory commentaries. The haste with which Sir Everard's was got up, may account for another note, in which one part of Mr. Hunter's practice is condemned; a better is hinted at, as adopted by the writer, but is not explained.

The following account of the Museum is copied from Sir Everard Home:

“ The collection of comparative anatomy which Mr. Hunter has left, and which may be considered as the great object of his life, must be allowed to be a proof of talents, assiduity, and labour, which cannot be contemplated without surprise and admiration.

“ It remains an unequivocal test of his perseverance and abilities, and an honour to the country in whose schools he was educated, and by the patronage of which he was enabled, on so extensive a scale, to carry on his pursuits.

“ In this Collection, we find an attempt to expose to view the gradations of Nature, from the most simple state in which life is found to exist, up to the

most perfect and most complex of the animal creation—man himself.

“ By the powers of his art, this collector has been enabled so to expose and preserve, in spirits or in a dried state, the different parts of animal bodies intended for similar uses, that the various links of the chain of perfection are readily followed, and may be clearly understood.

“ This Collection of anatomical facts is arranged according to the subjects they are intended to illustrate, which are placed in the following order:— First, parts constructed for motion. Secondly, parts essential to animals respecting their own internal œconomy. Thirdly, parts superadded for purposes connected with external objects. Fourthly, parts for the propagation of the species and maintenance or support of the young.

“ The first class exhibits the sap of vegetables and blood of animals, from which fluids all the different parts of the vegetable and animal creation are formed, supported, and increased.

“ These fluids being more and more compounded, as the vegetables and animals become more perfect, are coagulated, and form a regular series. The sap of many plants does not coagulate spontaneously, but is made to undergo this change by adding the extract of Goulard, in this respect differing from water: the sap of such plants is considered as the most simple. In the onion, there is a spontaneous coagulation. In insects, the blood coagulates, but is without colour: in the amphibia, colour is superadded. The moving powers of animals, from the simple straight muscle to the most complicated structure of that organ, with the different applications of elastic ligaments, form a

second series. The growth of bone, horn, and shell, come next in order; and the joints which admit of their moving readily on one another, finish this subject.

“ The second class begins with those animals of the hydatid kind, which receive nourishment, like vegetables, from their external surface, having no mouth. Then follow those which are simply a bag or stomach, with one opening, as the polypus, having no organs of generation, as every part of the bag is endowed with that power; but, in the leech, the structure becomes more complex: for, although the animal is composed of a bag with only one opening, the organs of generation, brain, and nerves, are super-added; and thence a gradual series is continued to those animals in which the stomach forms only a distinct part of the animal, for the purpose of digestion. The stomachs themselves are also arranged in the order of their simplicity. First, the true membranous digesting stomach; then those with the addition of crops, and other bags, to prepare the food for digestion, as in the ruminating tribe; and lastly, those with gizzards. Annexed to the stomachs, is a very complete and extensive series of teeth, which are varied according to the kind of food and stomach.

“ After the stomachs, are the different appearances of the intestinal canal, which exhibit almost an infinite variety in the structure of their internal surface, from which the aliment is absorbed. The quantity of surface is increased in some by transverse folds, in some by spiral or longitudinal ones, and in others, puts on a loculated appearance, as in the whale.

“ To these are added the glands, connected with the intestines, as the liver, pancreas, and spleen, which may properly be considered as appendages.

“ After digestion, follows the system of absorbing vessels, the simplest being the roots of plants, after which are the lymphatic and lacteal vessels of different animals. These in the human subject and the elephant are small, and in the turtle large and more numerous; but in the spermaceti whale, where they are employed for conveying the spermaceti, of a size infinitely beyond what is met with in any other animal. To these are annexed the thoracic ducts in different animals.

“ The natural order, in following the course of the aliment from the stomach as a guide, leads from the absorbents to the heart; which, in the caterpillar, is a simple canal or artery, running along the middle of the back of the animal, admitting of undulation of the blood: from this simple structure it becomes, in different animals, by small additions, more and more complex, till it arrives at the degree of perfection which is displayed in the organization of the human heart. These are followed by the different structures of valves in the arteries and veins, and the coats of these vessels. Then the lungs are shown in all their gradations, from the simple vascular lining of the egg-shell, which serves as lungs for the chicken, to those of the more perfect animals. In one instance, viz. that of the syren, both gills and lungs are seen in the same animal. The windpipe and larynx are then shown, under all their different forms. The kidneys, which separate the superfluous fluids from the circulation, make the last part of this subject.

“ The third class takes up the most simple state of the brain, which is, in the leech, a single nerve with ramifications. In the snail, the brain forms a circular nerve, through the middle of which passes the œsophagus; from which circle there are branches going to every part of the skin of the animal. In the insect, the brain has a more compact form; is larger in fish, but still more so in birds, gradually increasing in size as the animal is endowed with a greater degree of sagacity; till, at last, it becomes the large complex organ found in the elephant and in the human subject. The coverings of the brain, and the ganglions and peculiarities of the nerves, are annexed. The organs of sense are arranged in the order of their simplicity, beginning with that of touch, which is only a villous vascular surface, the villi very short where the impression is to be made through a thin cuticle, as in the human finger; very long where the covering is thick, as the hoof of the horse. The organ of taste is only a modification of touch, and therefore nothing in the organization is different; but the varieties in structure, adapting the tongue for different purposes, are numerous. In many animals, it answers the purpose of a hand, to bring the food to the mouth, as in many shell-fish, the ant-bear, wood-pecker, and camelion. Connected with the tongue are the fauces; which, in many animals, have peculiarities. In the electric eel, they have a very curious carrunculated irregular appearance; but they are yet more extraordinary in the camel, which has an apparatus to moisten the parts, so as to prevent the painful sensation of thirst, thus adapting the animal to the sandy deserts which it is

destined to inhabit. This apparatus consists of a large bag hanging down several inches in the fauces and attached to the palate, which the animals can at pleasure move up and down, and lubricate the fauces. The organ of smell is variously constructed, and is more complicated in many animals than in man, as in the lion, and sea-cow. The organ of hearing in fish consists of three semi-circular canals; but is much more complex in land animals. The organ of seeing is different in those animals which are formed to see in water, and in those which see in air; it differs again in those which are to see with little or with much light; all those peculiarities are illustrated by preparations. The pigmentum of the eye, in some fish, resembles polished silver; in ruminating animals, at the bottom of the eye, it has a greenish hue; in the lion and cat kind, a portion of the bottom is white; but, as a general principle, the colour of the pigmentum is the same as the rete mucosum of the skin of the animal, being white in white animals, and black in very dark ones.

“ After the brain and senses, are arranged the cellular membrane and animal oils, which are followed by the external coverings. These are divided into the different kinds, as hair, feathers, scales, etc. with the rete mucosum, or that membrane which is interposed between the true skin and the scarf-skin, for the purpose of giving the peculiar colour. Added to these, are the parts peculiar to different animals, for offence and defence, as spurs, hoofs, horns, stings, and also electric organs. There follow next such peculiar structures as occur in certain tribes of animals, as the air-bladders in fish, &c.

"The fourth class begins with those animals which have no distinct parts allotted for generation, that power being diffused over the whole animal. In these, the young grow out of the old, as in the coral and polypi: and, next in order, come the hermaphrodite organs, both of plants and of animals. The male organs are then taken up as a distinct subject; first in plants and then in animals, both at the times in which they do not breed, and in the breeding season, to show their different states; to these are added a number of parts, which answer secondary purposes in generation, and may be considered as appendages.

"The female organs are first exhibited in the maiden state, in every class of animals, demonstrating the shape and length of the oviducts, the form of the uterus, the length of its horns, with the varieties in their structure, and the instances in which these horns are entirely wanting, as in some monkeys; to which are added, the peculiarities respecting the hymen. They are then exemplified in the impregnated state, beginning with the seeds of vegetables and those which have both seeds and young shoots, as the onion. The eggs of insects follow next, with their changes, particularly of the silkworm. The spawn of fish are next shown; first, in those which have eggs, and then in those which have their eggs hatched in the oviducts, as the dog-fish.

"The arrangement then proceeds to the formation and incubation of the egg in the fowl, and the process of foetation in the quadruped, with their peculiarities and the different structures and appearances of the after-birth. Added to these are the peculiarities of the foetus, and the different modes by which the mother gives nourishment to her young.

" In this Collection, besides the preparations of the parts themselves in spirits, in a dried state or corroded, so as to give the most accurate ideas of their structure, there is a considerable number of very valuable drawings, to show the progress of different processes in the animal œconomy, together with such appearances as were not capable of being preserved.

" This sketch will give an idea, but a very inadequate one, of the system which is comprehended in Mr. Hunter's Collection. It also includes a very large series of whole animals in spirits, arranged according to their internal structure, and many of the most rare specimens of preserved animals in this country, as the camelopardos, guanica, hippopotamus, tapir, argus-pheasant, &c.

" There is also a series of skulls of different animals, to show their peculiarities, and skeletons of almost every known genus of animals. There is a large collection of shells and insects; a prodigious number of calculi of different sorts, from the urinary and gall-bladders, the stomach, and intestinal canal; there are likewise the most uncommon deviations from the natural structure, both in man and in other animals, preserved in spirits, or in a dried state. The most extraordinary specimens of this kind are a double human uterus, one of the parts pregnant; and a double human skull perfectly formed, the one upon the top of the other. To make this Collection more complete in every subject connected with comparative anatomy, is added one of the largest and most select collection of extraneous fossils that can be seen in this country."

When we consider the immense labour the above must have been collected, and at different times arranged, by Sir Everard Home, Mr. Bell, and others, in such order that the owner could show it to his friends and acquaintance twice a year, it is impossible not to regret that the public have derived so little benefit from it since Mr. Hunter's death. It may, however, be explained by an anecdote often repeated by the late Dr. Garthshore. One morning, finding Mr. Hunter very busy in his Collection, he observed, "Ah! John,* you are always at work." "I am (replied Mr. Hunter); and when I am dead, you will not soon meet with another John Hunter." Whoever was acquainted with the parties, will never suspect that this sentence implied more than, that if his whole collection should not be in order during his life-time, it would be accomplished with great difficulty after his death. Had the relator conceived any vanity attached to the reply, he would have been the last person to make it public. Though the Museum might be sufficiently in order for exhibition to common visitors, yet that much might be wanted for the completion of a catalogue.

In the Hunterian Oration, 1817, Mr. Cline assured his hearers, that the Collection contained more than 14,000 preparations, wet and dry: to these we must add shells and fossils. It was Mr. Hunter's custom

* This was a designation with which Mr. Hunter, if not proud of it, was certainly pleased, probably from its association with those early scenes which we all reflect on with delight. When speaking of himself in the third person, he used no other word. His publications announce John Hunter without any title, and his residence was marked with a similar inscription on a brass plate.

to place, under each preparation or addition to his Collection, a short account of the case, if it was a morbid substance; or his opinion of the animal, if it was new to him, with the name by which it was designated in the common language of the country. Whilst Mr. Bell remained with him, these were entered into a catalogue. But Mr. Clift, who succeeded that gentleman at an early age, and without any anatomical knowledge, could make such entries only when directed. The preparations of morbid anatomy were thus sufficiently described, though the previous history could not always be known. But the animals, or parts of animals, could not always be ascertained: and though it would not have been difficult to assign them an order, a class, a genus, and even species, yet Mr. Hunter was never satisfied with this mode of system-making. On a superficial view, we may regret that such a Collection is without a satisfactory Catalogue. But those who have occasion to examine systems of natural history, are well aware how unsatisfactory the descriptions often are, and will consider this backwardness in Mr. Hunter as another instance of the superior accuracy of a mind which could be satisfied with nothing less than truth.

Other causes of delay have occurred in making a catalogue, even as complete as circumstances might seem to admit. The expiration of the lease of the premises in Leicester Square, the delay of the parliamentary grant, and consequent uncertainty in the disposition of the Collection, are a sufficient apology; especially as, at this time, the diligence of Mr. Clift evinces itself to every person who views the Museum at different periods.

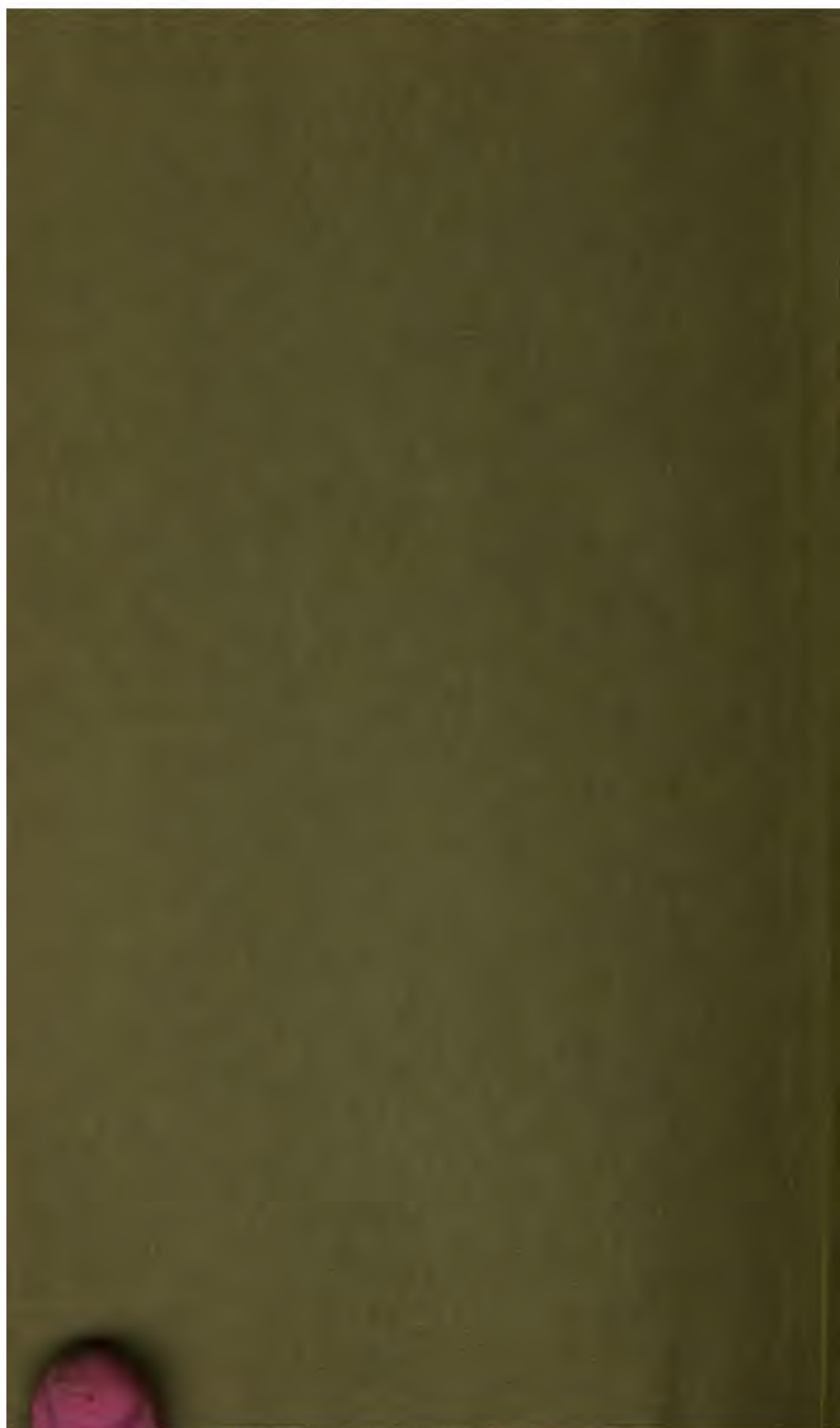
We may presume that some valuable papers still exist, which will assist in accomplishing the object so much to be desired. The morbid preparations are, I understand, most of them explained; but of the physiological parts, hitherto nothing has, I believe, appeared but Sir Everard Home's Lectures, unless some detached papers on Comparative Anatomy, published in the Philosophical Transactions, are to be considered as Mr. Hunter's.

THE END,









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